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THE INCREMENT CONTRACT

AS A MEANS OF INCREASING TIMBER PRODUCTION

ON NONINDUSTRIAL PRIVATE FORESTS

IN THE CENTRAL APPALACHIAN REGION

Cooperative Research Project Report

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ABSTRACT

Nearly 400,000 acres of nonindustrial private forest land have been brought into higher levels of timber production through long-term increment-based cutting contracts involving local woodland owners and large wood products firms in the South. Through personal interviews with forest industry executives and professional consulting foresters, the study examines the qualitative factors which affect the feasibility of implementing the increment contract in the Central Appalachians as a means of improving timber production on small private woodlands. Results of the interviews indicated that most nonindustrial private forest owners throughout the region would be receptive to the guaranteed annual payment provided through the contract. However, key changes in the basic agreement will be necessary in order to induce forest products industries to engage in increment contracts. These changes include a shorter contract period, establishment of unit prices for all potential products, and the inclusion of specific mechanisms for adjusting the unit prices for changes in local market and economic conditions.

I. INTRODUCTION

A. The Problem

The solution to what is called the small woodland problem continues to elude foresters, the wood products industry, and government alike. Essentially, the problem is that nonindustrial private forests in the United States produce timber at about one-half their physical potential (Sedjo and Ostermeier, 1978). Moreover, small private woodlands make up 283 million acres, or 58 percent of all commercial forestland in the nation (U.S. Department of Agriculture, Forest Service, 1979). With recent studies indicating an impending timber shortage for early years of the next century, such a situation is problematical, drawing closer attention to the management conditions on small forests and to the alternatives available for improving their production of wood products.

In the Eastern United States, particular attention to the small woodland problem could be an important step in closing the gap between expected production and expected consumption of wood. Nearly three-fourths of all commercial forestland in this region is held in nonindustrial private ownerships (U.S. Department of Agriculture, 1978). Although overall growing stock has been increasing, Knight and Hilmon (1978) reported a gradual deterioration in tree quality and a decrease in average tree size of hardwood growing stock in the East. It was also reported that landowners in the region are not managing for timber production primarily because it is financially unattractive and it conflicts with other objectives of forest landownership.

In a broad sense, the solution to the nonindustrial private forest

problem must involve some means of inducing private landowners to make investments in timber production and then to practice sound forest management to assure an optimum harvest. The heterogeneity of the forests and their owners makes this task complicated, ~~at best~~. Partial solutions have been developed, however, ranging from federal programs which provide landowners with technical advice and assistance to private programs like marketing associations, designed to keep landowners informed about current prices and market conditions.

The wood products industry has also developed partial solutions to problems on the small private woodlots. Many firms engage in long-term leases and landowner assistance programs in order to assure adequate supplies of raw material. Although leasing is a highly effective means of improving production, limited landowner participation has been a major obstacle to implementing this method. The increment contract, now used by several firms in the South, has great potential for overcoming this obstacle by making leasing more attractive to the landowner.

The major attraction of the increment contract, or cutting contract as it is sometimes called, is in the method by which the landowner is paid. Payment is determined by the "average annual increment of wood fiber the land is capable of producing under management." (Greene, 1979.) The production capability of the land is estimated before the agreement is made, using such criteria as site index, species composition, aspect, etc.

> At the beginning of each year the firm credits to the woodland owner's cord credit account . . . 65 to 75 percent of the average annual increment of wood fiber his land was estimated as being able to produce. (Greene, 1979.)

The landowner is then paid in quarterly installments for the increment.

> In years where . . . harvests exceed accumulated increment credits, the owner is paid for the balance and the account is brought to zero. In years where . . . accumulated credits exceed harvests to date, the balance is carried forward to have subsequent harvests debited against it. (Greene, 1979.)

The increment contract has other features which could induce landowners to engage in industrial management of their forests. The period between any necessary investments and returns on those investments is greatly reduced. The landowner is guaranteed a market for his forest products. The owner's other objectives of forest ownership are protected and the agreement preserves land holdings intact to be passed on to heirs (Greene, 1979). It is the method of payment, however, that makes the increment contract unique.

Use of the increment contract has been limited to the South, a region with vastly different characteristics from those in a hardwood region. Before the agreement can be implemented in the Central Appalachian Region, many questions must be answered. For example, will the much longer rotations and slower growth associated with eastern hardwoods require alteration of the cord credit account? Also, what are the advantages and disadvantages inherent in the provisions of the agreement? Such information is necessary in order to adapt and modify the cutting contract to the satisfaction of both the wood products firm and the landowner. By isolating the weaker points within the agreement, changes can be made which could result in a workable long-term contract capable of increasing timber production on previously undermanaged forestlands. Such a result would alleviate at least part of the timber supply pressures expected to occur within a few decades.

B. Study Objectives

The primary objective of this study is to determine the feasibility of the increment contract as a means of stimulating increased levels of timber management on nonindustrial private forests in the Central Appalachian Region.

A secondary objective of the study is to define what industrial leaders and landowners feel is a workable long-term timber management agreement in the Central Appalachian Region. This will be accomplished by defining the advantages and disadvantages of the increment contract from the perspective of forest industry executives and private forestry consultants. Private forestry consultants are familiar with the land management objectives of individual forest owners and are in a good position to speak responsibly for a variety of owners regarding the acceptability of increment-based management contracts.

Another secondary objective is the comparison of the general provisions of the increment contract with those of other landowner assistance agreements already in use. The comparison should shed new light on the variations possible in existing contract agreements which might attract more landowners to timber production as their primary objective of forest landownership. Particular attention is paid to determining differences in the timber resource and market conditions which affect implementation of the increment contract in the Central Appalachians, as opposed to its use in the Southern pine region.

II. REVIEW OF LITERATURE

The long-term timber management agreement is one of many partial solutions to the problem of low timber production on nonindustrial private forests. Its success in dealing with the small woodland problem has been well-documented, and there are strong indications that its usefulness has not yet been exhausted (Siegel, 1974; Bradley, 1967; Guttenberg, 1972). In order to study the possible effectiveness of a particular agreement, the increment contract in this case, it is helpful to examine the nature of the small woodland situation and the manner in which formal contracting has been used to deal with the small woodland problem. These important topics are discussed in the following four sections.

The first section deals mainly with the relationship between the small woodland as a timber source and the national timber supply-demand outlook. The second section includes a detailed discussion of the nonindustrial private forest and the nature of the problem found there. The third section presents a summary of the past approaches to the small woodland problem. Finally, the fourth section describes various forms of long-term forest management agreements used throughout the South and Central Appalachians.

A. Nonindustrial Private Forests and the National Timber Supply Outlook

1. Supply-Demand Outlook for Timber

At the heart of recent efforts to improve timber management on nonindustrial private forests (NIPFs) is the contention by many that

future timber supplies will be insufficient to meet the growing demand for wood products in the United States. Recent U.S. Forest Service timber supply-demand projections consistently predict shortages which may result in sharply rising relative prices for wood fiber by the year 2010 (USDA, Forest Service, 1974; USDA, Forest Service, 1977; USDA, Forest Service, 1979). In the event that physical supplies are not increased over projected levels, substantial increases in the relative prices of softwood stumpage and softwood timber products will be necessary to bring about supply-demand equilibrium in years to come (Knight and Hilmon, 1978; USDA, Forest Service, 1979). Hair (1978) indicated that without increases in supply, relative softwood sawtimber prices must increase 100 percent or more by the early 2000s in order to maintain such equilibrium.

Although less severe, a similar situation exists for the outlook of hardwood stumpage prices. Preferred species and higher grades of hardwood stumpage may have real price increases very near those of softwood species depending on availability (Knight and Hilmon, 1978). Regarding pulpwood and lower quality hardwoods used in manufacturing railroad ties and pallets, the supply-demand-price outlook is more optimistic. Still, all industries that compete for wood supplies will feel the adverse effects of rising relative prices unless physical supplies are increased above present projection levels.

Hair (1978) revealed that the results of allowing rising real prices, or economic scarcity, to supplant physical shortages of timber are for the most part undesirable. For one thing, sharply rising stumpage prices will limit the expansion potential of the timber

industries in future years. Higher costs to consumers and increased dependence on imported wood products will also result. Moreover, as nonrenewable resources are used to produce less costly substitutes for wood, both energy costs to consumers and environmental costs to society will continue to rise.

The sizeable gaps between expected consumption and expected production of timber, as indicated by recent U.S. Forest Service projections, are the basis for concern over impending rising relative timber products prices. Table 1 illustrates the magnitude of these supply-demand gaps under various assumptions about the future behavior of relative timber prices. Under the assumption that 1970 relative prices will continue throughout the projection period, consumption of hardwood timber nationwide will exceed the amount available for harvesting by 1.5 billion cubic feet in 2020. Even more serious, the softwood deficit in the same year approaches 6.8 billion cubic feet. These figures indicate that physical supplies of hardwood and softwood timber must be increased above present projection levels in order to maintain the 1970 level of relative timber product prices (USDA, Forest Service, 1977).

The prospective trends presented in the table also reveal a negative supply-demand balance under two other assumptions of price behavior by the year 2020. Under the assumption of rising relative prices, the negative balance is lowest, due to the manner in which the price increases affect projected levels of consumption. A brief explanation of U.S. Forest Service projection techniques will clarify this point.

TABLE 1. Roundwood demand and supply projections and supply-demand balances under three price behavior assumptions in billion cubic feet.

		1980	1990	2000	2010	2020
Supply from US Forests:						
Hardwoods	-	5.2	6.3	7.4	7.4	7.4
Softwoods	-	10.1	10.7	11.5	11.6	11.6
Total	-	15.3	17.0	18.9	19.0	19.0
Demand on US Forests:(1970 relative prices)						
Hardwoods	-	4.2	5.2	6.4	7.8	8.9
balance	-	1.0	1.1	1.0	-0.4	-1.5
Softwoods	-	11.9	13.4	14.9	16.8	18.4
balance	-	-1.8	-2.7	-3.4	-5.2	-6.8
Total	-	16.1	18.6	21.3	24.6	27.3
balance	-	-0.8	-1.6	-2.4	-5.6	-8.3
Demand on US Forests:(relative prices above 1970 averages)						
Hardwoods	-	3.6	4.5	5.6	6.8	8.0
balance	-	1.6	1.8	1.8	0.6	-0.6
Softwoods	-	9.4	10.7	12.0	13.9	15.5
balance	-	0.7	--	-0.5	-2.3	-3.9
Total	-	13.0	15.2	17.6	20.7	23.5
balance	-	2.3	1.8	1.3	-1.7	-4.5
Demand on US Forests:(rising relative prices)						
Hardwoods	-	3.7	4.3	5.0	5.8	6.9
balance	-	1.5	2.0	2.4	1.6	0.5
Softwoods	-	10.1	10.3	10.7	11.7	12.4
balance	-	--	0.4	0.8	-0.1	-0.8
Total	-	13.8	14.6	15.7	17.5	19.3
balance	-	1.5	2.4	3.2	1.5	-0.3

Source: U.S. Department of Agriculture, Forest Service, 1979. An Assessment of the Forest and Range Land Situation in the United States. U.S. Government Printing Office, Washington, D.C. 556 p.

Estimates of future consumption levels are based on assumptions concerning future population growth, economic activity, amount of disposable income, and relative timber products prices. The supply-demand balances in Table 1 illustrate that the quantity of timber consumed throughout the projection period will increase at a slower rate under conditions of rising relative prices than it would under the other assumptions of price behavior (Manthy, 1978). Further, unless physical supplies are increased through improved levels of timber management, sharply rising relative prices appear to be a virtual certainty. The negative balance projected for the year 2020, even under the assumption of rapidly rising prices, supports this conclusion.

On the other hand, U.S. Forest Service studies determine physical supplies based on assumed continuation of 1970 levels of management, less wasteful logging practices, and a slight decline in the area of commercial forestland. Consequently, physical supplies are calculated as a sustained-yield allowable cut for the particular target year. Changes in the behavior of relative timber products prices and related social conditions, therefore, do not affect the physical supply of timber available for harvesting. Only improvements in the 1970 levels of timber management on productive or unproductive acreages of commercial forestland can bring about increases in the physical supply, or that amount available for harvesting, as far as U.S. Forest Service projections are concerned.

2. The Nonindustrial Private Forest as a Timber Source

The basis for any effort to improve timber management on nonindustrial private forests is the potential they possess for substantially reducing supply-demand deficits in the United States. About 58 percent of all the commercial forestland in the United States is held by an estimated 4 million farmers and other miscellaneous owners (USDA, Forest Service, 1979). At present, these lands provide 38 percent of the annual softwood harvest and 76 percent of the annual hardwood harvest (U.S. Department of Agriculture, 1978). Still, nonindustrial private forests produce timber at about one-half their physical potential (Sedjo and Ostermeier, 1978). Recognizing the situation, the U.S. Forest Service has cited farmer and other private ownerships as having the greatest potential for increasing total timber supplies of any forest ownership class (USDA, Forest Service, 1974; USDA, Forest Service, 1977).

Opportunities for improvement are greatest in the East. Some 90 percent of the 586 billion board feet of hardwood sawtimber inventory is found in the eastern United States, where nearly three-fourths of all commercial forestland is held in nonindustrial private ownerships (Sedjo and Ostermeier, 1978). In addition, hardwood forest types occupy 70 percent of the commercial forestland in the East. Although the outlook for hardwood sawtimber supply is generally considered optimistic, there are still vast opportunities for improvement.

For instance, the most serious shortfall in predicted timber availability involves larger sized softwoods used in producing lumber,

plywood, and other construction materials (USDA, Forest Service, 1974). Upward trends in consumption have been met by increasing proportional use of softwoods over the past thirty years (Knight and Hilmon, 1978). The result has been a decrease in the proportion of hardwood consumption from 30 percent to 25 percent over the same period (USDA, Forest Service, 1977). As demands on both western and eastern softwoods expand, the hardwood resource will increase in importance, and there is concern over deteriorating quality and decreases in average tree size of the important hardwood species. Even though there has been a 32 percent increase in the volume of hardwood sawtimber inventory over the past twenty-five years, wood-using industries are already experiencing difficulty in getting the species and grades they want (Knight and Hilmon, 1978).

The importance of the nonindustrial private forests as a source of forest resources is therefore obvious. Small woodlands contain a major portion of the nation's hardwood resource, but there is growing concern that only small portions will be suitable for consumptive uses. Based on their total acreage and their presently low timber productivity, it is understandable that the small forests of the United States have great potential for improving the overall timber supply situation (Greene, 1976).

B. The Nonindustrial Private Forest and the Small Woodland Problem

In order to deal effectively with the complex problems associated with nonindustrial private forests, it is important to define this ownership class and to illustrate the heterogeneity of the land and its owners. Equally important is a discussion of American forestland in general, showing the relationship between the nonindustrial private forest and other ownership classes. An appropriate place to begin is with some key statistics regarding commercial forestland in the United States.

Nearly 488 million acres, about one-fifth of the total land area in the United States, is classified as commercial forestland by the U.S. Forest Service (1978). This means that the land is presently forested and is capable of producing 20 cubic feet of industrial wood per acre per year. Excluded from this group are acreages that have been reserved for uses not compatible with timber production (USDA, Forest Service, 1974). A great majority of the land classified as commercial forestland is presently producing timber. Other areas, which are understocked or nonstocked but capable of being more heavily forested, are also included in the total.

Some 58 percent of all commercial forestland in America falls into the nonindustrial private ownership class (Society of American Foresters, 1979). The Society of American Foresters defines this ownership class as forestland held in ownerships that possess no wood-processing facilities and are not engaged in the manufacture of wood products (Sedjo and Ostermeier, 1978; Society of American Foresters, 1979). In U.S. Forest Service literature, this class of ownership is

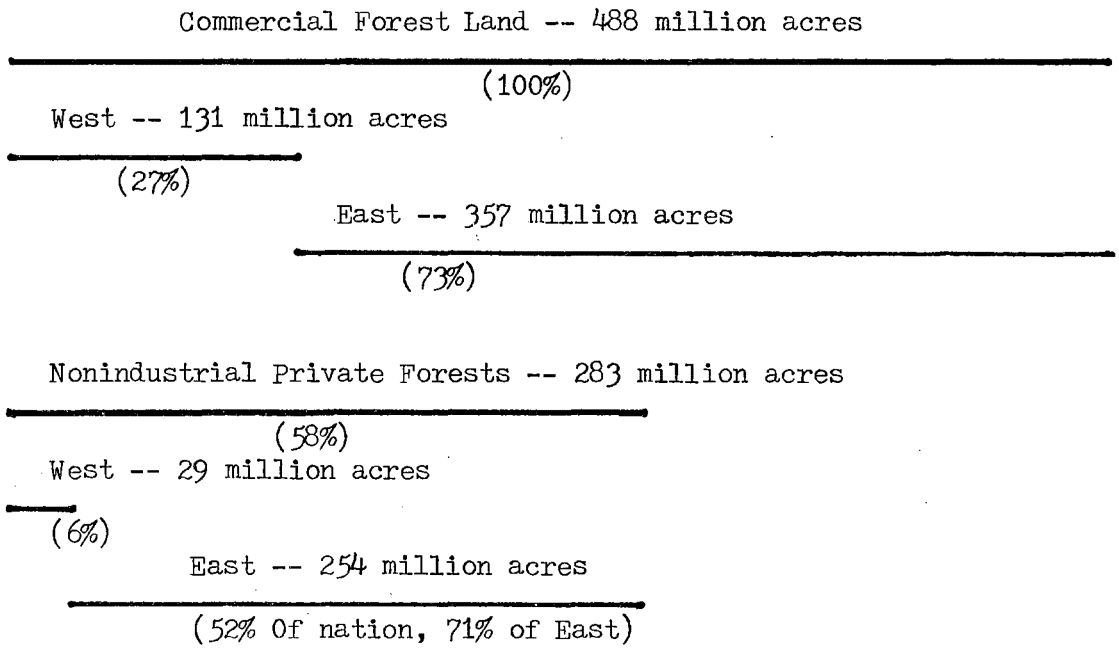
separated into two components, namely farm forests and other private forests. The total acreage of NIPF lands is divided about equally between these two components.

As illustrated in Figure 1, a substantial portion of the commercial forest area is held in ownerships that possess no wood-processing facilities. Figure 1 also illustrates that 73 percent of all commercial forestland is found in the eastern half of the United States (USDA, Forest Service, 1979). About 70 percent of these acreages are occupied by hardwood forest types (Knight and Hilmon, 1978). Of the 357 million acres of commercial forestland in the eastern United States, 71 percent are held in nonindustrial private forest ownerships (Knight and Hilmon, 1978). In terms of land area, therefore, the importance of the small woodland is apparent, particularly in the eastern portion of the country.

Land area statistics cannot stand alone, however, in explaining the significance of the nonindustrial private forest. A brief discussion of the characteristics of the owners is equally helpful in understanding the complexities that surround the resource and management conditions on our most predominant forest ownership class.

Although great diversity of owners and objectives are often cited as factors which complicate the small forest situation, some similarities among owners exist. In the Appalachian Region, for instance, the typical owner is over 50 years old with little or no financial ability to make long-term forestry investments (Brock, 1968; Larson and Ganser, 1972). Recent studies indicated that nonindustrial owners, for the most part, have completed little or no education beyond early high school grades (Worley, 1960; Christensen and Grafton, 1966). This situation should

Figure 1. Breakdown of commercial forestland in the United States showing proportion in East, West, Nonindustrial Private Forests, and the proportion of NIPFs in East and West.



Source: U.S. Department of Agriculture, Forest Service, 1979. An Assessment of the Forest and Range Land Situation in the United States. U.S. Government Printing Office, Washington, D.C. 556 p.

gradually improve as the ownerships are sold or are willed to younger, better educated owners. As these studies are slightly outdated, it is likely that some improvements have already taken place.

Other similarities involve the attitudes of owners toward the practice of forestry on their holdings. Studies have indicated that owners in the Appalachian Region feel that forestry is not a profitable venture and thus make no attempt to sell or manage timber (Hutchinson and McCauley, 1961; Brock, 1968). Furthermore, these owners often have ownership objectives that are inconsistant with timber production (Grafton, 1963; Christensen and Grafton, 1966; Worley, 1960). Greene (1976) cited recreation, need for space, and pride of ownership as examples of such objectives.

In other respects owners of nonindustrial woodlands are a diverse group. Some owners, often absentee, hold forest land as an investment. These include doctors, business men and women, housewives, or recent heirs to an estate (Society of American Foresters, 1979). Still others hold their forested properties as part of a family owned farm.

The diversity of owners and local conditions has made it difficult to deal with the traditionally poor timber production and low levels of management on nonindustrial private forests. Gray (1978) suggested that the small woodland situation be viewed as an opportunity rather than a problem. Whatever the semantic description, a review of the production figures and management levels is needed to fully appreciate the opportunities for improving resource outputs from the nonindustrial private forests.

1. The Small Woodland Problem Defined

Two fundamental propositions underlie what is called the small woodland problem. Basically, the conventional view holds that the amount of timber produced annually in the United States will fall short of the amount necessary to meet projected consumption levels by the year 2005 (Vaux, 1973; USDA, Forest Service, 1974; LeMaster, 1978). It also maintains that nonindustrial private forests are undermanaged, both silviculturally and economically, and that timber production on these lands is well below potential (Yoho, 1973; Sedjo and Ostermeier, 1978; USDA, Forest Service, 1974). There are opponents to this position, but the arguments which support the conventional view of the problem continue to outweigh those of its critics.

Opponents of the conventional view have cited stable pulpwood prices, net increases in the volume of softwood and hardwood growing stock, and flaws in past projection techniques as evidence to refute notions of future timber shortages (Clawson, 1978; Manthy, 1978; Sedjo and Ostermeier, 1978). While these lines of argument have some degree of validity, each has shortcomings that should not be overlooked.

Although pulpwood prices have remained stable, real prices of sawtimber have doubled for southern pine, quintupled for Douglas-Fir, and increased by 50 percent for eastern hardwoods in the last three decades (USDA, Forest Service, 1977). These price increases weigh heavily in support of upcoming shortfalls. Their effect on costs of construction and wood products could lead to a loss of national welfare (Society of American Foresters, 1979). Furthermore, pulpwood prices

have remained stable as a result of improvements in technology and more complete utilization of the harvested material (USDA, Forest Service, 1974; LeMaster, 1978). To dismiss the small woodland problem on the grounds that pulpwood prices have remained stable could bring about serious consequences in the future.

Opponents of the conventional view of the small woodland problem have also cited increases in inventories of softwood and hardwood growing stock as contrary evidence of impending shortages. These increases would generally convey an optimistic outlook for future timber supplies. More realistically, however, figures indicate that there has been a net decrease in the volume of softwood sawtimber over the past 30 years (USDA, Forest Service, 1974). LeMaster (1978) commented that the better outlook for hardwood sawtimber may permit some substitution for softwood species, but substantial improvements in softwood sawtimber supplies will still be required to meet future needs.

In the eastern United States, overall growing stock has been increasing. By contrast, veneer and furniture manufactures are having difficulty procuring certain species, grades, and size classes of hardwood sawtimber (Knight and Hilmon, 1978). It is understandable, therefore, that optimistic national trends in total timber inventory often mask supply problems which are restricted to regional economies.

The U.S. Forest Service (1974) estimated that the deviation between desirable levels of timber production and what will actually be available to meet forecasted levels of consumption can be narrowed by increased use of eastern hardwoods. Since nearly three-fourths of

all our commercial forestland in the East is held in nonindustrial private ownerships, producing timber at about half their potential, increasing production on nonindustrial private forests in the Eastern Hardwood Region could be an important step in closing the gap between expected production and expected consumption (USDA, Forest Service, 1974).

Critics have also questioned the accuracy of Forest Service projection techniques and have concluded that shortages of timber will be nonexistant if prices are permitted to rise above 1970 levels (Manthy, 1978). In addition to the effect this would have on the national welfare, other factors not considered in the projection process or by its critics should be included in a defense of the conventional supply-demand outlook for timber. The first is the ever-growing world demand for wood and fiber products. With continued improvements in timber production, the United States could reduce the need to import increasingly costly products (Society of American Foresters, 1979). The second is the potential demand boom for wood and wood fiber resulting from hikes in the relative price of energy and energy expensive materials(LeMaster, 1978). Even if U.S. Forest Service projections are unduly pessimistic, as critics claim, there still remain potentially hazardous conditions which could threaten the well-being of our forest resource if left in its present state. This thought points to the second underlying proposition of the small woodland problem.

In addition to future supply-demand deficits, the traditional view maintains that management on nonindustrial private forests is poor

compared to other ownerships and that timber growth is below potential (LeMaster, 1978). Some important statistics reinforce these claims. Current net annual growth per acre on nonindustrial private forests is about 36 cubic feet per acre. Potential growth is estimated to be around 72 cubic feet per acre in fully stocked natural stands (USDA, Forest Service, 1977). Furthermore, considering their acreage alone, nonindustrial private forests might be expected to supply over half the forest product needs of the nation (Greene, 1976). Recent studies indicated, however, that they were producing only 40 percent of the necessary supply, a fraction of their potential (USDA, Forest Service, 1974).

The situation on the nonindustrial private forests has been recognized for many years. An exact, identifiable cause of the problem is thought to be nonexistant. Considering the diversity of owners, their objectives, and local conditions, many limiting factors influence the productivity of small woodlands. The following section presents the reasons often given for low levels of production on small woodlands in terms of how the owner, assumed to be a rational decision maker, evaluates his investment alternatives.

2. Reasons for Low Timber Production on Small Private Forests

The timber productivity problems associated with nonindustrial private forests are clearly a function of the experience, motivation, and ownership objectives of the landowner. A detailed look at these characteristics can reveal useful insights into the factors which influence how their forests are used. The reasons they give for owning forest land are particularly enlightening with regard to understanding conditions of timber management.

Most reasons cited for owning forest land fall into one of four major groups: recreation and aesthetics, a need for open space, timber production, and plans for clearing and development (Worrell and Irland, 1975). Sedjo and Ostermeier (1978) suggested that rapid inflation has also caused some investors to move into forest ownership to reap the benefits of rising land values.

Income-conscious speculators may find investments in timber production consistent with their immediate goals of ownership, but other owners may strongly object to the techniques used to produce timber crops. Not all who refrain from growing timber, however, do so because they feel it is inconsistent with their primary objectives of ownership.

Certain other factors have been identified as deterrents to higher timber productivity on nonindustrial private forests. The more notable factors include:

(1) low levels of profitability and high alternative rates of return restraining forestry investments (Stoddard, 1961; Sedjo and Ostermeier, 1978);

(2) landowners lacking the technical knowledge concerning timber growing and marketing (Greene, 1976);

(3) high tax costs relative to the value of timber growth (Stoddard, 1978) and lack of knowledge concerning potential tax savings (USDA, Forest Service, 1978); and

(4) inefficiencies of scale in managing and harvesting small woodlands (Row, 1978).

In the Appalachian Region, several additional factors are important to consider. Greene (1976) cited the mountainous terrain of the region and low income levels of the Appalachian forest owners as limiting the practice of forestry. The rough topography has kept the population scattered and made communication and interaction with the rest of the nation a slow process. Clinging to ideologies of land exploitation due to exposure to early lumbering practices, the people of the region are not quick to implement good forest management practices (Duerr, 1949; Greene, 1976).

Low income levels have led owners to exploit landholdings and neglect the land by failing to make the investments necessary to yield high value timber (Greene, 1976). This is due to a lack of capital or a high time preference for capital that is available (Cook, 1978).

The small woodland problem and the reasons for its existance have led to many partial solutions, each dealing with some aspect or cause of the problem. A discussion of these approaches should make clearer the complex nature of the problem.

C. Past Approaches to the Small Woodland Problem

Efforts to increase timber production on nonindustrial private ownerships were started before 1900. The earlier programs were government sponsored and included incentives such as tax breaks to encourage landowners to plant and maintain forests, and educational assistance to landowners -- notably the programs spawned by the Clark-McNary Act of 1924 (Stoddard, 1961).

Educational extension services were initially directed toward farmers, a group holding the majority of commercial forestland and thought to lack adequate knowledge of forest management (Greene, 1976). Christensen (1957) revealed that progress on small ownerships has been minimized by a lack of response and interest on the part of owners to programs that provide instruction. These efforts to educate landowners have succeeded to some extent, but this method is at best a partial solution to the problem.

As early as 1898 the U.S. Forest Service, then the Division of Forestry under the direction of Gifford Pinchot, provided technical assistance to woodland owners (Greene, 1976; Kaufman, 1960). Federal technical assistance is now provided through the Cooperative Forest Management Act of 1950 (Stoddard, 1961). Under this arrangement, matching state and federal funds allow states to provide on-the-ground services to private woodland owners (USDA, Forest Service, 1976).

Financial assistance in the form of tax breaks and cost-sharing are also available to nonindustrial private forest owners. Programs such as the Agricultural Conservation Program (ACP) and the Forestry Incentives Program (FIP) provide direct subsidies to forest owners via cost-sharing.

These are intended to make forestry more profitable by absorbing some forest management costs (Greene, 1976). ACP funds have been utilized on only about 1.8 percent of the nonindustrial private forest acreage since ACP's inception in 1936 (Greene, 1976). FIP was started in 1973 to aid only nonindustrial owners with holdings of 500 acres or less. This program is also primarily a cost reduction opportunity aimed at increasing timber production. A recent survey indicated that FIP has been cost-effective on the average, but some areas have had suboptimal results (Mills and Cain, 1979).

Other financial aids such as a Growing Stock Banking System have been proposed but not yet implemented. Funds derived from the sale of Resource Development Bonds would be used to finance growing stock development on individual ownerships (Darwin, 1971).

Private industry has also sponsored attempts to increase timber production on nonindustrial private forests. The most notable of these is the American Tree Farm Program, started in 1941, which by 1967 encompassed 70 million acres, over half of which was small private woodlands. By 1980 it is expected that nearly 30,000 individuals, controlling some 80 million acres, will be involved in this program (Stoddard, 1978). The program requires that members make a demonstrated commitment to continuous timber production. Agreements differ among cooperating firms and can be either oral or written (Pleasanton, 1975).

Other methods of improving production on small woodlands, such as landowners assistance programs, are currently used by several wood products firms. Industrial interest in nonindustrial private forests is explained by the amount of wood that these lands supply to timber conversion plants in the eastern United States. In 1970 small woodlands

contributed three-fourths of the hardwood removals in the East (Sedjo and Ostermeier, 1978). This dependence on nonindustrial private forests has led several large companies to develop programs to increase timber investments and improve production on these lands. In exchange for the technical assistance and management information, the landowner grants to the sponsoring firm the right of first refusal on timber harvested at a fair market value (Sedjo and Ostermeier, 1978).

Landowners themselves have made efforts to increase productivity and profitability of timber production. Owners of small woodlands have formed cooperatives to seek economies of scale in timber management and better bargaining positions in marketing products (Stoddard, 1961; Greene, 1976). Cooperatives operate as business enterprises. Success depends on the benefits realized by patrons of the cooperative (Yoho, 1961). Solin (1940) cited their small size, poor management, and undercapitalization as past deterrents to success. For the most part, forestry cooperatives have not led to great improvements in small woodland productivity.

Past approaches to the small woodland problem have had varying degrees of success in dealing with specific obstacles to increased owner motivation and interest in timber production. The Society of American Foresters has called for more attention to various forest land leasing arrangements and specific provisions which are appropriate in certain situations (SAF, 1979). Siegel (1974) suggested that leasing offers forest industry a means of managing intermingled or nearby tracts with their own at lower costs than those generally incurred by individual owners. A discussion dealing with contracts

and leases as approaches to the small woodland problem is presented under a separate heading. Information which indicates the current status of the increment contract in particular is included to show how this agreement might further improve the productivity of small woodlands in the Appalachian Region.

D. Long-Term Contracts for Forest Land

Information concerning the development and use of long-term forest management agreements is presented below. The intention is to clarify the role of formal and informal agreements in serving the needs of the landowner and the firm alike. In addition, the discussion identifies specific categories of agreements and the conditions under which they are used. Finally, a discussion of the increment contract presents the unique characteristics of this agreement and the history of its development.

1. Definition of a Long-Term Timber Management Contract

The long-term timber management contract is a formal, written agreement between a nonindustrial private forest owner and a processor of raw timber material, usually a large pulp and paper company. Ten years is generally considered the minimum acceptable term for such agreements, but some companies waive this restriction if the contract includes a purchase option (Siegel, 1974). The agreements are legally binding and contain specific clauses which outline the responsibilities of each party involved. They specify the amount and method of payment and the measurement unit used to calculate cash payments. Most contracts also include clauses which provide for settlement of disputes, assignment of risk, and more general terms such as condition of the land at the close of the agreement.

Other agreements, such as the tree farm family agreements, may be considered informal in that they do not legally bind the involved parties to some future action. Under these verbal agreements, the company generally provides assistance in the form of management plans and estimates of market value of potentially harvestable material. In return, an owner is expected to allow the firm to match the best offer in the event the owner decides to sell, often called the right of first refusal under written contracts.

Throughout the remaining discussion, informal agreements are not considered. They are useful in many instances but relatively easy to understand and administer. By contrast, formal long-term forestry agreements are expansive and complex. Furthermore, formal agreements are generally written on an individual basis including provisions suited to particular circumstances (Siegel, 1974). No two contracts are exactly alike, but many agreements can be categorized into broad groups according to the method of payment, management responsibilities of the firm, and the applicability of capital gains taxation.

2. Types of Long-Term Agreements

Lump-sum agreements --

This form of long-term agreement is the most common in terms of numbers of outstanding agreements. On an acreage basis, however, the average tract size is small and it accounts for a small percentage of the land under long-term contract (Siegel, 1974).

Generally, a lump sum of cash is paid for both land rental and timber purchase at the beginning of the contract (Siegel, 1974). The company is free to grow and harvest timber throughout the contract period.

Some lump-sum agreements stipulate a volume per acre or stems per acre to be returned at the close of the contract. No clause for adjustments due to changing economic conditions is included (Siegel, 1974).

Timber and land lease --

This form is similar to the preceeding in that the payment for timber and for lease of the land is not distinguishable for tax purposes. The difference is that instead of a lump sum payment, the lessee makes a regular periodic payment throughout the contract period (Bradley, 1967). Essentially a straight lease, the rent is calculated on a per acre per year basis.

In effect, the timber stand as a whole is rented. The lessee is entitled to the growth, obliged to leave the original volume at the close of the contract (Siegel, 1974). Not all agreements considered to be land and timber leases, however, require this volume to be returned.

Timber sale and land lease --

Under the terms of this group of agreements, the initial volume of timber is purchased by the lessee. A rental fee is paid annually for the land. Bare land is thus rented for the purpose of growing timber. Land already stocked is rented and the timber is paid for on a volume basis as cut (Siegel, 1974; Bradley, 1967).

The annual rental rate can be adjusted using a broad economic index (Bradley, 1967). In addition, the payments for timber are subject to capital gains taxation. This treatment is usually limited to payments made for the original volume of merchantable timber (Briggs, 1977).

Share-crop contract --

This type of long-term agreement is not commonly used. Siegel (1974) found that only three companies in the South were using a combined total of eight such agreements. His study was limited to the South, but it is believed that share-crop timber agreements are most applicable in plantation-type forestry of southern pines.

Under this agreement, the company is responsible for managing and selling the timber. Proceeds are shared at a specified rate with the owner, usually absentee (Bradley, 1967). Because the owner retains a clear economic interest in the timber, payments are taxed as capital gains (Bradley, 1967).

Cutting contracts --

In terms of acreage, the cutting contract is the most important type of long-term management agreement used in the South (Siegel, 1974). The agreement has two basic forms. Under the first form, the landowner may sell timber at an agreed upon price as it is cut. Under the second, he may sell the right to cut, the cut to be made at some future date. The latter form amounts to a prepayment which assures the owner an annual income from the land (Siegel, 1974; Bradley, 1967).

Tax laws are unclear as to the application of capital gain treatment of these annual payments. Briggs (1977) cited a recent court decision that allowed capital gains treatment on only the amount of timber present at the beginning of the agreement. It must be shown, however, that the payments represent actual volume present at the time of payment and not timber yet to be grown (Bradley, 1967).

3. Purpose of Long-Term Leases and Contracts

Most wood-using industries draw from three main timber sources to meet their raw material requirements. Timber may be purchased on the open market from small logging concerns. It may also come directly from company-owned forests via company logging crews or via private loggers who harvest the timber and deliver it to the yard or mill (Duerr, 1960). Still another source is forest land held or controlled under a lease or cutting contract.

Each source has important limitations. For example, the ownership of forestland is fast becoming less feasible due to increases in purchase costs and the scarcity of suitable timberland (Greene, 1979). Purchasing forest land in fee simple is also hindered by competition within the firm. The processing and marketing division projects often receive higher priority than land acquisition projects originating in the woodlands department (Siegel and Guttenberg, 1968). More importantly, there is a limit to the cut a firm can elect to make in any given year. Consequently, few wood-processing companies own enough timberland to safely sustain their mill operations (Siegel and Guttenberg, 1968).

Wood purchased on the open market is also an important source of raw material for the firm. The firm cannot depend too heavily on this source, however, chiefly because the majority of woodland owners do not consider timber production an important objective of ownership (Kingsley, 1979). Harvesting for many owners becomes attractive only in times of severe economic need and abnormally high prices. Kingsley (1979) indicated that only a small percentage of landowners are

production oriented when selling timber. For the most part, owners of nonindustrial private forests are value oriented, seeking only the monetary benefits of a solitary sale. Future production and the necessary management treatments are rarely considered. The wood-using firm therefore is faced with great uncertainty concerning the future availability of raw materials. Without adequate control over timber supplies, the highly capitalized timber processor jeopardizes many costly investments.

In an effort to gain adequate control over management and harvesting activities without purchasing land in fee simple, many forest products firms have turned to the long-term timber management contract. This method of control reduces the high outlay of capital and frees substantial amounts of capital for use in higher return alternatives in other departments of the company (Greene, 1979). In addition, leased acreages can be managed in conjunction with company forests at less cost than the owner would otherwise incur (Guttenberg, 1972).

The prudent forest products firm owns forest land as a source of profit and as a contingency reserve (Yoho, 1973). It is clear, however, that only a portion of the necessary stumpage supplies can come from company-owned land. The remaining portion must be acquired from either public or nonindustrial private forests. Because few nonindustrial landowners consciously provide a dependable source of timber, the firm seeks to control management and harvesting through methods other than fee simple ownership (Siegel, 1974). The long-term timber management contract has proved to be an instrument which serves such a purpose. It requires a substantially lower capital investment,

and it is legally binding, thus reducing the uncertainty regarding future timber supplies.

4. Benefits of Long-Term Forestry Agreements

Siegel and Guttenberg revealed that incorporating nonindustrial forests into the operations of a large wood-using firm can increase productivity on these otherwise undermanaged lands. As a result, landowners and industry alike realize certain benefits from the agreements.

The landowner enjoys regular periodic income and a security of receiving this income (Bradley, 1966). The agreement usually provides low cost professional management (Greene, 1979), and minimum administrative responsibilities (Bradley, 1966). For owners interested in land speculation or a method of preserving ownership to pass on to heirs, acontract that runs with the land is a highly effective tool (Guttenberg, 1972). Most importantly, contracting provides the landowner with a reliable market for his or her timber (Greene, 1979).

The firm enjoys the benefit of having a future supply of timber at a fraction of the cost of purchasing woodlands. In addition, the firm can consolidate operations between fee and contract lands, making work more economical at cost-feasible times (Siegel, 1974).

Society also benefits from long-term contracts. Nonindustrial private forests are managed under binding agreements which most often require the practice of sound forestry. The firm is thus held liable for the proper management of a previously neglected resource (Darwin, 1971). Present laws governing the administration of contracts serve to improve a valuable resource without new government regulation.

5. The Increment Contract

The cutting contracts described by Siegel (1974) include most of the characteristics of the increment contract. Essentially, the cutting contract requires the lessee to pay for timber at an agreed-upon unit price as it is harvested. Some agreements make the lessee responsible for management, while others do not. As a general rule, however, the original volume of timber must be returned when the contract expires (Siegel, 1973).

Where the increment contract gains its distinction is in the method of payment. The increment contract is a unique variation of a conventional cutting contract. The landowner is not required to wait until timber is harvested to receive payment. Instead, payment is based on a percentage of the average annual growth and is made in quarterly or annual installments. A record is kept in terms of a cord credit account and subsequent harvests are debited against it (Greene, 1979). In years where harvests exceed credits to date, the landowner is paid for the excess and the account is brought to zero.

Several authors have described what amounts to an increment contract (Bradley, 1967; Darwin, 1971; Siegel, 1973; Greene, 1979). The consensus is that this variation of the cutting contract provides sound legal foundation to apply Section 631 (b) of the tax code to the annual timber payments (Briggs, 1977). Because only partial payment is made and the risk of losses lies with the lessor, economic interest is retained and capital gains treatment applies (Greene, 1979). Consequently, firms that are interested in contracting for forest land find owners receptive to such an arrangement (Greene, 1979).

The literature indicated that use of the increment contract has been limited to the South, chiefly in areas of southern pine. In terms of acreage, the more general cutting contract involves more timberland than any other agreement (Siegel, 1974). The increment payment variation controls about 400,000 acres, with application expected to increase (Greene, 1979).

The acceptability of the increment contract in the Central Appalachian Region is not known. This research effort seeks to determine the applicability and feasibility of increment payments in the region. Local resource and management conditions will most certainly affect the feasibility of the agreement. What is yet to be presented is the manner in which thses factors will apply.

III. STUDY SCOPE AND PROCEDURE

A. Scope

The investigations of this research effort were limited to two major topics. The initial investigation sought to identify the distinguishing characteristics of the increment contract as it is presently used in the South. Attention was focused on the motivation for developing the agreement and on the purpose behind the unique provisions of the contract. The second subject addressed by the study was an assessment of the possible effectiveness of initiating increment contracts in the Central Appalachians as a means of improving timber management conditions on nonindustrial private forests within the region. Attention here was focused on the resource and market conditions under which large forest products firms in the region could feasibly engage in formal increment contracts with owners of small private woodlands for timber and forestland management. In addition, this phase of the study sought to reveal modifications of the basic agreement which would enhance the workability of increment contracts in a predominantly hardwood region and which would make formal contracting more attractive to woodland owners.

Information in the literature indicated that formal contracting for forestland management, in terms of acreage and ownerships involved, has been an effective means of bringing previously undermanaged small forests into higher levels of timber production in the South. One reason is that woodland owners in the South have a relatively wide variety of formal contract arrangements from which to choose. As a result, it is

possible for landowners to improve the productivity of their woodlands through arrangements that are most suitable to their immediate ownership objectives and financial needs. In the Central Appalachians, this is not the case. Few variations in contract arrangements are available to landowners in the Appalachians, the most common arrangement being the lump-sum purchase and timberland lease. Forest owners who find the terms of this agreement unsatisfactory are thus discouraged from formal contracting.

This study was designed to illustrate the qualitative factors of the increment contract which might provide Appalachian forest owners a viable alternative to the leasing arrangements now offered by forest products firms. Furthermore, use of the increment contract has been limited to the South primarily because it is a relatively new timber management arrangement. Therefore, the questions posed by this study constitute the first step toward implementing increment-based agreements outside the southern pine region.

Information concerning the development and use of the increment contract was obtained from forest industry representatives located in the South. Greene (1979) was able to identify four major pulp and paper firms that presently use the increment contract to manage nonindustrial private forests in parts of Alabama, Florida, and Georgia. Representatives from three of these firms provided information for the study.

Information concerning the feasibility of the increment contract for use in the Central Appalachians was collected throughout a five-state area. Professional foresters in Pennsylvania, West Virginia, Maryland, Virginia, and North Carolina provided information regarding local

nonindustrial private forests, their owners, and the possible effectiveness of implementing increment-based agreements in particular localities.

B. Procedure

Because increment contracts have seen limited use, little information concerning them was available in the literature. For this reason, the primary method of investigation used in this study was to conduct indepth interviews with key individuals who have had experience with increment contracts or who are familiar with the industry-landowner relationship associated with formal contracting.

The methodology of this study is described in two parts. The first section details the procedure used in collecting data via personal interviews. The second section discusses the interview categories, how they differ from one another, and the underlying purposes for including each category.

1. Collection of Data

The format of the personal interviews was important to the success of this study. In most cases, interview participants could be visited only once, requiring that the interviewer be completely prepared with questions that satisfied the study objectives. Prior to each interview, a series of specific objectives for that interview was developed. Then, a list of discussion topics related to the interview objectives was organized to guide the interview. A list of questions on each topic was then developed to elicit as much relavent information as possible. (Examples of the questionnaires used in this study are presented in Appendix A.)

It was decided that the most efficient way to set up the interviews was to first contact the interviewee by telephone. This first communication served to introduce the interviewer to the participant and to inform the participant of the nature of the study. After cooperation had been confirmed, a followup letter was sent to further explain the study and to brief the interviewee on the features of the increment contract. This consisted of an information packet which briefly listed those provisions unique to the increment contract and a short explanation of the cord credit account. (An example information packet is presented in Appendix B.) Shortly before the actual interview date, another telephone call was made to reconfirm the appointment and set up specific meeting times.

Responses to interview questions were usually recorded by hand as the interview proceeded. Persons interviewed were assured that all responses were strictly confidential and that no references to persons in particular would be made in the report unless permission was obtained.

2. Interview Categories

For clarity and organization, this section of the procedure is subdivided into three parts. Each part represents a category of interview based on the participants involved and the type of information sought.

Part 1: Preparatory Interviews

The preparatory interviews served to lay the foundation for the remainder of the study. A clear understanding of the use and utility of long-term timber management agreements was gained through these initial interviews.

To supplement the literature search, an interview with Mr. W.C. Siegel (Project Leader, Forest Resources Law, U.S. Forest Service, Southern Forest Experiment Station) provided a clear picture of modern long-term timber management agreements and their relationship to local resource and market conditions. Because Mr. Siegel had researched long-term management agreements in detail, it was felt that he would be able to objectively compare the increment contract with other contracts of the same general type. This interview also prepared the way for a study of all landowner assistance agreements in order to find the common features of those that are successful in alleviating timber supply problems. Briefly, these were the objectives of the Siegel interview:

a. To become familiar with long-term timber contracts now in use and their characteristic provisions;

b. to determine what local resource and market conditions are usually linked to various contract provisions;

c. to elicit opinions regarding the increment contract and its use in the South;

d. to determine what conditions exist in the South that lead to the success or failure of the increment contract.

Mr. Siegel was interviewed the morning of November 30, 1979 at his office in New Orleans, Louisiana. The interview lasted approximately two hours. Information obtained during the interview was used to develop questionnaires for interviews with firms that presently use the increment contract.

Information on the present use of the increment contract also formed an integral part of the preparatory interviews. Interviews with representatives of firms currently using the increment contract were used to collect this information. For instance, it was necessary to define the increment contract by its characteristic provisions. This required close inspection of actual agreements to uncover those features which make the increment contract unique. It was also necessary to learn the history and development of the contract to reveal the conditions under which it has thrived. These interviews provided data whereby comparisons of the increment contract with other agreements could be made. They also gave the increment contract a defined identity, so that the feasibility of applying it in the Central Appalachian Region could be studied.

Briefly, these were the objectives of the interviews with firms currently using the increment contract:

a. To become familiar with the major provisions of the increment contract as the individual firms use it;

b. to determine what owner characteristics and local market and economic conditions lead the firms to use the agreement;

c. to elicit opinions as to the advantages and disadvantages of the increment contract;

d. to collect quantitative data relative to use of the increment contract (and other contracts used by the firm).

A total of four interviews were conducted with key individuals who had experience in both the development and use of increment-based

cutting contracts. One interview with a large pulp and paper company was conducted on February 21, 1980 in Jacksonville, Florida. It lasted approximately three hours and included discussions of contracted forest property located in Georgia and Florida. Three additional interviews, each lasting about two hours, were conducted on February 28 and 29, 1980 in Birmingham, Camden, and Pine Hill, Alabama. Participants included a retired woodlands manager, a professional forestry consultant, and a land administrator with a large paper company.

In summary, the preparatory interviews were designed to gather information on long-term contracts in general and to document experience with the increment contract in particular. The information collected in the initial meetings served to establish the specific direction for the remainder of the study.

Part 2: Interviews with Central Appalachian Industry Personnel

The purpose of these interviews was to determine the feasibility of the increment contract when used in the Central Appalachian Region. Because most large wood products firms have had some experience with timberland management and utilization agreements, they were in a good position to comment on the feasibility of this agreement. The bulk of the interviews was spent comparing the provisions of the increment contract with those types of agreements currently used by the firm. The participants were asked to point out problems and possible solutions apparent in the features of the increment contract. Over the course of the study, most undesirable characteristics were exposed and suggestions for their improvement were compiled.

Quantitative data was also included in this series of interviews. Feasible tract sizes, proximity to company lands, and production capability requirements of the leased land were used to indicate where and when an increment contract could be used. As in the preparatory interviews, data was collected on the long-term management agreements used by each firm. This was used to indicate the potential success of leasing in general as a means of increasing timber supplies.

Six interviews with industry representatives were completed in June, 1980. Industrial woodland and wood procurement managers, representing firms located in five states, were interviewed using questionnaires developed from information obtained in the preparatory interviews. Company offices located in northern Pennsylvania, West Virginia, Maryland, Virginia, and North Carolina were visited in this phase of the study. Each interview lasted approximately two hours.

Part 3: Interviews with Consulting Foresters

Interviews with professional consulting foresters were included in this study to learn more about the attitudes of landowners toward outside management of their forest lands. Since consultants work directly with and on behalf of private owners, a consultant's experience qualifies him to discuss the advantages and disadvantages of a management agreement from the viewpoint of the landowner. In addition, it was felt that a consultant may be more cooperative and candid than a private landowner on questions that require personal opinions.

Three professional forestry consultants located in West Virginia indicated that they could provide information useful to the study. They were interviewed in mid-October, 1980. The meetings lasted approximately three hours each.

IV. PRESENTATION OF STUDY RESULTS

A. Results of the Preparatory Interviews

Early in the planning stages of this research project it was apparent that the unique provisions and characteristics of the increment contract would have to be clearly defined. The plans called for complete understanding of these provisions in order that later interviews with industry personnel and consulting foresters would provide useful insight into the possible utility of the increment contract in specific localities of the Appalachians. Interviews with key personnel of firms currently using the increment contract provided a majority of the information necessary to define the agreement clearly. Respondents were particularly helpful in explaining the operation and function of the cord credit accounting system used to record payments made to the landowner. This accounting system is the most distinctive feature of the increment contract. Accordingly, this aspect of the agreement is the focus of attention in the paragraphs which follow.

1. Basis for Pre-payments for Growth Increment

At the beginning of the contract, the company estimates the timber production capabilities of the forest tracts to be included in the contract. This is accomplished via a preliminary cruise of the area including measures such as present timber inventory, site index, and species composition. The purpose of the preliminary calculations is to determine the mean annual increment (MAI) over the length of the contract

period. Annual credits to the landowner's cord credit account are then based on a percentage of the mean annual growth potential.

One firm makes advanced payments for about 65 percent of the estimated mean annual increment each year during the contract period. Other respondents indicated that the pre-payments ranged from 65 to 75 percent of the MAI, depending on how the contract was negotiated. Firms refrain from paying the full amount in order to avoid making payments for timber that may not be merchantable by the close of the agreement. Further, the landowner can retain an economic interest in the standing timber, thus remaining eligible for capital gain tax treatment of income. Due to sophisticated tax awareness of southern landowners, this feature of the agreement serves as a selling point when the firm seeks to contract for control of the timber.

Figure 2 was presented during one of the preparatory interviews to illustrate the relationship of growth, cut, and the recovery of backlog throughout the contract period. On the vertical axis the average annual growth is expressed in cords, primarily because softwood pulpwood is the desired raw material of this particular firm. Also indicated on the vertical axis is the minimum yearly purchase or annual cord credit specified in the contract. Early in the rotation, when annual growth is less than the specified minimum purchase amount, the annual cut is less than annual growth to allow the stand to increase in volume. As annual growth approaches the minimum purchase amount, the annual cut and the annual growth lines converge as illustrated in Figure 2. Throughout this period, a backlog develops whereby the landowner maintains a steadily larger credit balance in his or her cord credit account. Once the annual

DIAGRAMMATIC SKETCH

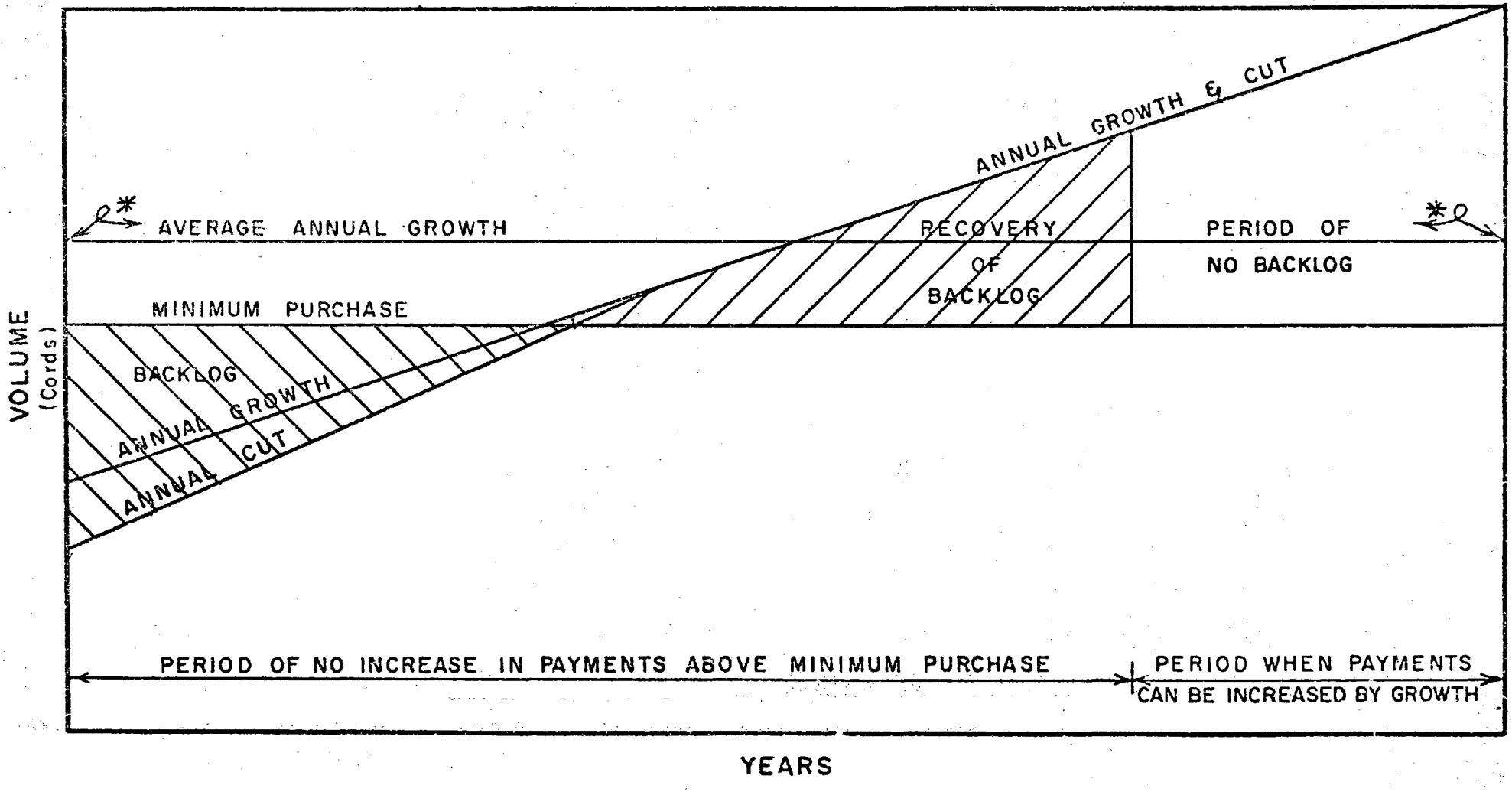
SHOWING RELATIONSHIP OF

GROWTH, CUT, AND BACKLOG

OF A TYPICAL

TIMBER PURCHASE AGREEMENT

(INCREMENT CONTRACT)



Total Volume Of Timber Which May Be Removed During Period Of Contract.

growth exceeds the minimum purchase amount, the firm harvests an amount equal to annual growth, and the backlog of credit is recovered. When all of the backlog has been recovered, harvests in excess of the minimum annual purchase will result in increased annual payments.

Figure 2 illustrates the mechanics of the cord credit account under the assumption that the contract is entered into at the beginning of the rotation in an even-aged stand. Clearly, this is rarely the case. On larger holdings, various stages in the rotation are often represented. At the beginning of the contract period, some stands may require regeneration cuttings. Others may require only thinnings or improvement cuttings. Under these circumstances, timber removals in the first few years may preclude the accumulation of backlog in the cord credit account. Nevertheless, the landowner will receive credit for harvests in excess of this amount.

The cord credit account assures that the firm pays for usable material only. This is facilitated by converting all removals into cords for purposes of accounting. Figure 3 shows how harvests of various timber products are debited against the account. Using their respective unit prices, all products removed are first converted to a dollar value. The total dollar value of all harvested material is then divided by the stipulated price per cord to arrive at the cord debit. A complete cord credit account, showing actual transactions on a 550 acre tract since 1968, is presented in Appendix C.

In summary, the firm makes annual payments for the right to remove a given volume of timber. The payments are converted to cords for convenience in accounting. As timber is removed, cord debits reduce

Figure 3. EXAMPLE CORD CREDIT ACCOUNT

Period 2

CORD CREDIT:

Beginning balance..... 2,049.0 cords

Annual Credit (1969)..... 785.0 cords

Total Cord Credit..... 2,824.0 cords

CORD DEBIT:

Pine saw: 85,232 Cu.Ft. @ $ .18 Cu.Ft. = $ 15,341.76

Pine pulp: 318.88 cords @ $ 6.00 cord = $ 1,913.28

Hwd saw: 18.71 MBF @ $ 32.50 MBF = $ 608.08

Hwd pulp: 108.31 cords @ $ 2.40 cord = $ 259.94

Total.....$ 18,123.06

$ 18,123.06 divided by 6.00* = Cord Debit.....(3,021.0)cords

BALANCE CORD CREDIT OR (DEBIT)----------(178.0)cords

(178.0) cords debit @ $6.00* = $ 1,068.00 due Owner.**

* Note: The cord credit balance from the previous period has been carried forward. The owner is paid $4,710.00 or 785.0 times $6.00 as his annual payment. The total dollar value of harvested products is converted to cords and debited against the accumulated cord credit. A debit balance results.

** The owner is paid an additional $1,068.00 within the stipulated time period and the account is brought to zero.

any accumulated cord credit balance. If harvests exceed credits to date, resulting in a debit balance, the owner is paid for the excess and the account is brought to zero. By converting removals to cords on a value basis, the firm pays for only the portion of growth increment that is used or sold.

2. Contract Provisions Governing the Cord Credit Account

Certain provisions within the written agreement serve to direct the operation of the cord credit account. Understandably, the increment contracts used in the South utilize the pine pulpwood cord as the accounting unit. Firms engaged primarily in the production of pulp and paper products prefer the traditional cord measurement, but other standard units of measure would work just as well.

With the emphasis on the production of wood fiber, the cord is defined in terms of weight. One firm defines the cord as 5300 pounds of pine pulpwood, or 5400 pounds in the case of hardwood pulpwood. Terms of the agreement also specify the purchase price and a means for adjusting the price with changes in economic conditions. The Producer Price Index for Industrial Commodities is generally used for such adjustments, but only when changes in the annual average equal or exceed 5 percent since the previous adjustment.

Products other than pulpwood are also considered in the contract provisions. Factors which may influence the stumpage price of merchantable timber are explained in the contract. Product classification, the accessibility of timber, character of the terrain, and the road network serving the land are all factors used to arrive at an equitable stumpage

price. Because the dollar value of various products is used to determine their cord equivalent, the unit price of each product is made available to the landowner via an annual statement of past activities. This provision obligates the firm to keep accurate records and allows the landowner to review such records periodically.

Other provisions stipulate the minimum annual purchase and payment of debit balances. The minimum annual purchase is expressed in cords, with the actual cash payment varying with the adjusted price per cord. Debit balances in the cord credit account are brought to zero through cash payment within thirty days of the prescribed accounting period, usually at the end of the calendar year. Credit balances are carried forward and do not affect the annual cord credit in subsequent years.

The annual cord credit can, however, be reduced under conditions set forth in the written agreement. In the event that local mill operations cease for six months or longer, payments may be reduced to $1.00 per acre per year. Further, the owner has the right to sell timber on the contract land to persons other than the contracting firm during this period, the amount limited to the annual cord credit. When mill operations resume, the owner again receives the full minimum annual cord credit and must sell timber exclusively to the contracting firm. Other circumstances, which may prevent the contracting parties from fulfilling their contractual responsibilities, permit the affected party to be released from its obligations completely. Such circumstances include war, Acts of God, labor strikes, government restrictions, disease or insect attack, mining activities, condemnation of title, forest fire, and damaging weather conditions. The minimum annual purchase is thus

reduced in proportion to the acreage removed or affected by the adverse occurrance. Within specified limits, some land may be removed from the contract acreage at the discretion of the owner, so long as the areas involved do not impede the progress of ongoing operations of the firm. Firms interviewed also allow land to be added to the contract acreage. The owner is permitted to plant pine seedlings on open or bare land, subject to time and site quality restrictions. Following planting procedures, the minimum annual cord credit is increased by three-fourths of one cord of pine pulpwood for each acre planted. The minimum annual cash payment is adjusted accordingly, and the additional acreage becomes subject to the other conditions of the agreement.

3. Other Provisions of the Increment Contract

In addition to the mechanics of the cord credit account, other aspects of the increment contract were discussed in the preparatory interviews. One of these is the forest management obligations of the contracting firm. Because the contracts generally involve southern pine species, the agreement requires the firm to reforest by planting or seeding in accordance with good forestry practices. Harvested material must be utilized to obtain the largest number of pine pulpwood cords or its equivalent. Payment or cord debit is required only for the material actually used commercially or sold by the firm. The manner in which harvesting is conducted is determined solely by forestry professionals employed by the firm. Logging methods including selective cutting, seed tree cutting, or clearcutting may be implemented provided the loggers exercise care to avoid unnecessary damage to growing stock. Both parties fully acknowledge that the production of merchantable timber is to be

maximized; they agree to cooperate and to coordinate their activities in accordance with good forestry practices.

Several provisions not uncommon to most long-term forestry agreements also received attention during the interviews. Disputes among contracting parties are settled through arbitration. Payments and communications are channelled through an agent bank selected by the landowner. The owner retains hunting and grazing rights. The firm is granted the right of free access and the right to build and maintain woods roads. Parties may transfer rights to others without consent, but obligations remain with the original parties. Finally, the landowner warrants that the land is not encumbered in such a way that might hinder the operations of the firm.

Two key provisions of the increment contract are worthy of special attention. The first is concerned with the placement of risk in the event of timber damage or destruction. The contract stipulates that the owner holds title until the timber is actually cut. As such, the owner retains a lien on cut timber until it is paid for in full. Any loss resulting from insect attack, disease, or other damage before the timber is cut is borne by the landowner. This provision does not, however, relieve the firm from liability for losses resulting from negligent actions. As previously discussed, the firm is not legally bound to harvest timber that is damaged beyond feasible and economical salvage.

The second key provision is that which provides for the payment of taxes on standing timber and cut timber. Prior to harvest, the landowner pays all taxes on the timber. Severence taxes and taxes on

cut timber are most often paid by the firm. One responding firm revealed that owners usually pay the taxes accruing to the land, but the firm has the option of paying delinquent taxes and holding a lien on the property until such payment is reimbursed. Another responding firm indicated that company policy is to pay ad valorem taxes throughout the contract period. The owner need only establish and maintain a good system of boundaries.

Thus far, the discussion has focused on the terms of the increment contract which legally bind the contracting parties. The preparatory interviews also yielded useful information about the history and development of the agreement. Interview participants described the factors which influence the company to use increment contracts and other long-term arrangements. Other topics were discussed, including the applicability of capital gain taxation on income derived through regular annual payments for timber. Recent interpretations of this tax law have influenced the firm's policy toward long-term timber management agreements. Comments recorded during the interviews are summarized in the sections that follow. For convenience, the discussion topics are presented under individual headings.

4. Development of the Increment Contract

The participating parties were most informative with regard to the conditions under which the firms developed and implemented the increment contract. Common to all sources was the need to control large acreages of commercial forestland without making the exorbitant capital outlays required in fee simple purchases. One firm used increment-based payment

contracts to provide landowners sufficient incentive to commit land over a long term as early as 1947. The company was planning to expand its kraft paper mill operations prior to developing the contract. Proposed capital expenditures for the expansion project prevented the purchase of timberland as a supplemental source of raw materials. Landowner attitudes and fluctuating stumpage prices made timber purchases on the open market unreliable, forcing the firm to develop a suitable alternative for controlling forestland without purchasing it in fee simple.

The firm considered using long-term contracts, but the area had been saturated with cutting and management agreements to the point where few additional contracts could be negotiated. Reaching an impasse, the firm developed an agreement more suitable to the needs and wishes of the landowner. The result was an agreement whereby the landowner received an annual payment for his timber and the benefits of capital gains taxation on the income as well.

Prior to the development of the increment contract, the only agreements which provided the landowner with certainty of receiving annual income from his or her forest was the lease. Income received through leasing agreements, however, was and still is taxed as ordinary income. The increment contract was therefore welcomed by local timberland owners, primarily because it provided a legal foundation for claiming capital gain tax benefits on their timber income. Because the owner received payment for only a portion of the accumulated growth, and the payment was made for actual standing timber, the owner retained an economic interest in the growing stock. This characteristic satisfied

section 631 (b) of the tax code and this overcame the obstacle of questionable retained interest associated with lease payments. Ultimately, more landowners were willing to commit land over a long period.

More recently, a firm based in Canada was seeking to construct a linerboard mill in the South when similar circumstances occurred. The firm considered the costs of acquiring funds to purchase timberland to be in excess of their established risk policies. However, the company needed to have at least 100,000 acres under long-term control in order to proceed with construction of the mill. One interviewee disclosed that landowner sophistication with regard to timber tax laws resulted in the development of an increment contract very similar to the one described above. Before owners would consent to contract arrangements, the company had to provide both a minimum annual payment and the contract mechanism for receiving capital gains benefits. Accordingly, the firm hired a private forestry consultant and a timber tax lawyer to help develop a suitable agreement. Their efforts resulted in securing 125,000 acres of southern pine timberland under increment-based cutting contracts. The company was then able to construct their mill and begin operations.

Throughout the preparatory interviews, it became evident that the capital gains tax law plays a key role in determining the attractiveness of a given forest management agreement. High income bracket landowners with large forest landholdings are sensitive to the effects of even the slightest tax advantage. The next section deals with such tax advantages

as they affect the landowner and hence the contracting firm.

5. Tax Considerations of Forest Management Contracts

Forest management contracts which provide annual payments to the landowner can be viewed in one of two ways. The payment is either applied as payment for subsequent harvests of timber, or it is applied as rent for use of the land. Payments specifically linked to the severence of timber indicate a retained interest in that timber on the part of the landowner. Income derived in this manner entitles the forest owner to claim the benefits of capital gain or loss taxation on that income. Conversely, the annual payments not attributable to timber harvests, like those in a lease, are considered to be rental income and are taxed as ordinary income.

Some court decisions have denied owners the capital gains treatment because annual payments were fixed and without reference to actual timber volume. Because the increment contract uses the cord credit accounting system, annual payments are directly linked to subsequent harvests. This qualifies the income for capital gains treatment whether or not the payments appear to be fixed.

Under new interpretations of the tax code, lease payments up to the value of the timber present when the contract is executed may be treated as capital gains. Any excess is taxed as ordinary income. One interview participant revealed that new interpretations of the code also affect the taxation methods of the increment contract. Only the income from volumes equalling the timber present at the inception of the agreement is taxed as capital gains. The difference between this interpretation and the one governing leases is important. Capital gain

treatment for leases is contingent on the original value whereas the treatment for increment contracts is contingent on the original volume. If timber values do not increase substantially during the contract period, the tax benefits accruing to the landowner under the two contract forms are virtually the same. Only the increment contract, however, provides a firm legal foundation for claiming the benefits. Claiming capital gains benefits under a leasing agreement may involve the landowner in expensive litigation, thus cancelling some or all of the tax advantage.

In summary, the preparatory interviews disclosed that the application of capital gains tax laws is the single most attractive feature of the increment contract as regards the landowner. Although the firms did not promise this advantage to the landowner, the tax benefit did play a key role in selling the agreement. Landowners previously unwilling to consent to a lease responded positively when the increment contract was introduced as an alternative.

6. Disadvantages of the Increment Contract

The most often disputed aspect of the agreement is the market price the firm pays for timber. Pulpwood prices have caused few problems, but sawlog prices have occasionally led to dissatisfaction among owners. If disputes cannot be settled between the contracting parties, they are settled through arbitration. Respondents revealed that few such disagreements have occurred in the past. In a rare case, the owner was permitted to pay back the cord advance and the contract was thus negated. Usually, however, some other means of settlement allows the contract to remain in force.

Another shortcoming of the agreement stems from change of ownership during the course of the contract period. Because the contracts run with the land, a new owner often has difficulty adjusting to the partial control of his or her forest land. More specifically, new owners require special attention from the company forester concerning logging practices until the owner becomes accustomed to the complete management plan.

Also, one firm began using the increment contract in lieu of purchasing a timberland base. Most contracts began at approximately the same time with stipulated 60 year lives. The problem is that almost all the agreements will terminate at about the same time, leaving the company with only half their present timberland base. The company representative was not certain how to remedy this situation short of renegotiating the contracts prior to their expiration dates.

The length of the contract period has caused problems as well. Rapid increases in land values and expansion of urban centers has led many landowners to require shorter contract periods. Because increment contracts require many more years to be effective, the companies are now favoring leases as the alternative to fee ownership. Where owners are willing to make the tradeoff between tax advantages and shorter contract periods, the firm will consent to a contract as short as 35 years. The objective under a lease is to control management through at least two rotations. Such agreements involve a complete regeneration cutting in the first five years with a complete harvest after thirty years. One person interviewed disclosed that the firm also prefers a straight lease because the management requirements are less strict and the payments

are lower. Further, the lease arrangement allows the firm to remove more timber than is actually paid for following removal of the volume for which a lump-sum payment was made. Once the lump-sum volume is cut, lease payments may not cover the additional material that is harvested, depending on how the contract was negotiated.

7. Summary

The partcipating parties were most informative with regard to the conditions under which their firms developed and implemented the increment contract. Common to all sources was the need to control large acreages of commercial forestland without the large capital outlays required in fee simple purchases.

The firm considers fee purchases the preferred form of management control when sufficient capital is available. In the event sufficient capital is available but owners are unwilling to sell, the straight lease is preferred over the increment contract. The increment contract is only considered when particularly attractive ownerships are involved, and when the owner has first refused a lease and a purchase offer. The present company preference is to buy forest land when possible, followed by leasing, followed by increment payment agreements, and finally by some form of landowner assistance program.

Qualitative factors reflecting the advantages and disadvantages of the increment contract were also discussed. One participant commented that this agreement is perhaps the most fair of all long-term forestry agreements between landowner and industry. Another respondent intimated that the company can do no better than break even under the increment payment system. He explained that the lease arrangement sometimes yields greater harvest volumes for the same cash payment than does the increment

contract arrangement.

As regards the landowner, the application of capital gains tax laws is the single most attractive feature of the agreement. Persons interviewed also found landowners attracted to contracting as a means of keeping landholdings intact for future generations. All things considered, the concensus of opinion regarding the viability of the increment contract as a solution to supply problems in the South is positive, especially when circumstances limit the availability of capital.

Defining the increment contract in terms of its characteristic provisions was the primary objective of the preparatory interviews. Actual copies of both an increment contract and a cord credit account were used to satisfy this objective completely. A copy of an actual increment contract can be found in Appendix D. A copy of an actual cord credit account is presented in Appendix C, and a copy of the information packet used to present the increment contract in later stages of the study can be found in Appendix B. The information packet summarizes the results of the preparatory interviews and illustrates the mechanics of the increment contract. In order to emphasize the unique features of the agreement, the packet focuses on the cord credit account and the means of determining the minimum annual payment.

Following the preparatory interviews, several forest products firms in the Central Appalachian Region were asked to comment on the possibility of implementing such agreements within the region. The results of the interviews with industry representatives are discussed in the following section.

B. Results of the Interviews with Industry Personnel

1. Current Use of Formal Long-Term Forestry Agreements

The initial series of questions asked during interviews with industry representatives focused on the firm's past experience with long-term forest management agreements. The purpose behind this line of questioning was to determine the reasons why long-term agreements have progressed to their present level of use and the extent to which formal contracting could be expanded in a particular locality. Responses to questions of this nature varied from firm to firm. The marked response differences occurred among subregions of the study area, which exhibited local resource and market conditions which were markedly different from those of other subregions.

a. Eastern Virginia and North Carolina Subregion

One region, the eastern forests of Virginia and North Carolina, is characterized by a mixture of hardwood and Coastal Plain southern pine species. Information obtained from this subregion was from three relatively large wood processing firms. None of the respondents expressed a great need for formal contracting as a means of increasing timber supplies. Raw material supplies from nonindustrial private forests are adequate at this time to satisfactorily supplement removals from company-owned timberlands. All three firms, however, have had experience with formal long-term forest management agreements.

Two of the firms interviewed revealed that under certain conditions long-term leases with lump-sum purchases of standing timber are established with local owners. The acreages must be relatively large, 1800 acres

in one case and 5,000 acres in another. In addition, the standing volume of timber must be at or near merchantable size classes. In one instance, the firm had negotiated two 30-year leases, one of which terminated after four years when the company agreed to purchase the acreage involved. A right of first refusal is usually included in these agreements, to be exercised in the event the participating landowner decides to sell. Each of the firms mentioned above was engaged in one long-term lease. Both firms indicated that the annual rental payment for timber management rights amounted to $3.00 per acre. Other formal agreements with landowners had been entered into, but none for a specified period of more than five years.

The third company interviewed in the Coastal Plain subregion, a firm of considerable size and diversification, has had much more active experience with long-term forestry agreements. When questioned about the firm's motivation behind using the formal contract as a management tool, the interviewee indicated that the main interest of the company was to increase timber production on local small forests through whatever means suitable to the individual owner's desires. This effort is aimed at reconditioning local attitudes toward stewardship of the forests and at providing future supplies of high quality timber. Preference toward the production of grade logs was expressed, but satisfaction of landowner objectives is given higher priority.

Unlike the previous two firms discussed, this company offers interested forest owners five alternative forms of long-term agreements. The owner may choose to accept a lump-sum payment for standing timber

and subsequent rental payments similar to the leases described above. Alternatively, the owner has a choice between a "share cropping" arrangement or a straight lease, granting the firm cutting rights for a specified number of years with the certainty of having the original volume returned at the end of the contract period. A fourth alternative consists of a timber management agreement which provides the landowner with a management plan, free technical advice, and cost-sharing opportunities for services rendered. This arrangement is not strictly binding on either contracting party; only a written thirty day notice is required to terminate the agreement. A fifth form of long-term agreement, apparently growing in acceptance among local owners, provides an annual payment for future harvest rights. This form is not unlike an increment contract in that a final payment is made based on the actual volume cut.

Under this prepaid purchase contract, the annual payment is determined based on the expected volume of the final harvest cut. The forested property is appraised prior to the contract negotiations considering only the final crop trees. The present value of these crop trees is amortized over a fifteen-year contract period using an annual interest rate of 10 percent. The beginning prices are also negotiated prior to the agreement and adjusted using the U.S. Department of Labor, Producer Price Index for Industrial Commodities as a hedge against inflation. Removals made during commercial thinnings are treated as a bonus for the landowner, leaving the annual payment unaffected. A final balloon payment is used to adjust for the actual volume removed during the final harvest cut.

Within the Coastal Plain subregion, therefore, there appears to be a consistency of opinion regarding the use of long-term forestry agreements to improve management of nonindustrial private forests. Responses to interview questions indicated that firms in this area do not consider formal contracting to be a necessary means of increasing timber supplies on small woodlands. On the other hand, each firm interviewed agreed that formal contracting could be a viable management tool under certain conditions. Briefly, these conditions include a willingness of individual owners to commit sizable acreages, roughly 500 acres or more, to industrial management over at least a ten year period. Further, industry would prefer to contract for acreages which are far enough advanced in age to permit harvesting soon after the agreement is made. Other conditions, such as proximity to wood yards and accessibility of standing timber, would be of less concern but would be accounted for in negotiating with individual owners.

Regarding the potential for expanded use of formal contracting, these firms also agreed that significant acreages were available to make contracting a real possibility within the working circle of each firm involved. One firm revealed that the average size of local small woodlands is approximately 27 acres. By combining several properties or by concentrating on larger-than-average tracts, the respondent indicated that the firm would be in a better position to become involved in formal agreements than it would be to negotiate with many individual owners of small holdings. Beyond the conditions required by the firm, responses disclosed that the major obstacle would be developing an

arrangement which is suitable to local forest owners. Discussions concerning this topic are presented under a separate subheading.

b. Northern Pennsylvania Subregion

Whereas the Coastal Plain forests are managed using relatively short rotations of 35 to 50 years, the Northern Hardwood forests of Pennsylvania require rotations of 80 to 120 years, depending on site and species composition. Also, management in the former is oriented toward production of pine pulpwood, while management in the latter is oriented toward production of hardwood sawtimber. Two interviews conducted in northern Pennsylvania revealed striking contrasts to the interviews held in eastern Virginia. First, the firms situated in this predominantly hardwood region have had virtually no experience with formal forest management agreements. The reasons given for this are twofold: Because wood processing firms in this region have historically drawn timber supplies from the Allegheny National Forest, local private holdings, and company-owned timberlands with a high degree of satisfaction, efforts to improve management on nonindustrial private woodlands has been unnecessary. In addition, ownership of private forests has been complicated by oil, gas, and mineral industries holding subsurface rights to much of the surrounding forestland. The risk of holding only partial control of surface activities has prevented large forest products firms from considering the formal contract as a method of management control. Only recently has concern over dimishing supplies of high quality sawtimber brought about discussions of improving such output from local forests via industrial management.

The second contrast between the northern forests and the eastern Virginia forests deals with the attitudes of local landowners toward formal forestry contracts. In the Allegheny Hardwood region of Pennsylvania, owners of nonindustrial private forests are unfamiliar with

long-term agreements of any kind. Timberland owners have historically allowed their forests to go unmanaged following harvest cuttings. Because the rotation required to produce quality sawtimber is relatively long, most owners do not make the necessary investments in forest management. One firm interviewed presented calculations indicating that the first commercial cutting is not possible before age 40 using evenaged management of the Allegheny hardwood type on good sites. Firms have considered leasing in the past, but local forest owners do not find the long contract period to be advantageous. In short, owners are unwilling to make long-term investments in forestry due to the long payback period involved, and they are equally unwilling to become involved in formal agreements for at least the same time period. Their aversion to formal contracting stems from their unfamiliarity with it and their need to retain complete control of their ownership rights. Further comments from those persons interviewed revealed that interest in formal contracting is growing at this time. The firm's efforts, however, are limited to gathering information on a variety of long-term management arrangements.

C. West Virginia Subregion

The third subregion included in the interviews with forest industry personnel involves the Central Appalachians of West Virginia and western Virginia. Two interviews were conducted within this area, again revealing resource and market conditions very different from those of the other two subregions. In West Virginia, the market for pulpwood is limited to one firm with processing plants in western Virginia and Maryland. Markets for sawtimber can be found, but these are confined to relatively small operations situated throughout the subregion.

The lack of competition for fiber in this subregion allows the firm to purchase raw material without serious concern for shortages. As a result, the company has not entered into any long-term forest management agreements to date. When questioned about the possibility of using formal contracts for managing small woodlands in the future, the interviewee explained that such agreements were unnecessary due to two factors. First, timber purchased from small private ownerships within the working circle will not, in the foreseeable future, fall into short supply. The respondent commented that management conditions on local small woodlands do not warrant the firm assuming full management control via a formal long-term agreement with the landowner. Any needed improvements could be administered through the company's cooperative management assistance program. The program now involves 250,000 acres of forestland, a satisfactory supplement to the firm's present timberland base.

The second factor which negates the need for formal contracting is the proximity of other sources of raw materials. Company-owned timberlands provide nearly 40 percent of required raw material. One company's goal is to obtain 50 percent of mill requirements from a timberland base of about 400,000 acres. The remaining 50 percent will be purchased from the Monongahela National Forest and again, nonindustrial private forests in the area. Although the present and future dependence on small woodland timber is significant, the lack of competing wood processors in this area makes the formal contract an unnecessary instrument for improving small woodland production of timber.

2. Industry Dependence on Nonindustrial Private Forests

A general concensus among the seven industry representatives interviewed during the study is that wood products firms throughout the Central Appalachian Region will continue to draw a significant portion of their raw material requirements from local nonindustrial private forests. Presently, pulp and paper producers acquire from 25 to 85 percent of their fiber requirements from small private woodlands. Although not a representative sample, the one lumber-producing firm included in the study disclosed that at least 50 percent of its required sawlog volume is purchased from independent contractors who harvest from nonindustrial private forests. The respondent also indicated that the trend would continue unless large acreages of forestland could be purchased and added to the company's present timberland base.

One line of questioning during these interviews focused on the attitudes of the firm toward ownership of timberland and toward purchasing additional acreages in the future. All firms participating in the study intend to continue purchasing suitable timberland when it is available, provided the purchase price can be negotiated to the satisfaction of both parties. The reasons for this varied. Some respondents disclosed that key purchases can provide better access to existing company property. Others indicated that purchases which consolidate patches of company land reduce boundary line expenses, reduce transportation costs, and improve economies of scale. One woodlands manager added that a large timberland base adds to the company's

political influence within political boundaries. The most common response, however, was that ownership of timberland provides a safety reserve of raw materials with which to sustain the company's mill operations. Clearly, the company is better able to control management activities and the production of preferred size classes and species of timber via fee simple ownership of forestland. This aspect of forest ownership allows the firm to alter timber production as a means of complementing other sources of raw materials available to the firm. Problematical, however, is the need to accurately predict the availability of supplies from relatively unpredictable sources, such as local nonindustrial private forests. Persons interviewed also provided comments on this topic.

There was general agreement throughout the interviews that the management of local nonindustrial private forests is in need of improvement. Perhaps the major concern among the firms contacted is with the future availability of high quality, high value sawtimber. Respondents stressed the need for responsible intermediate cuttings and treatments which favor preferred species for final harvest cuttings. Presently, landowners do not realize the importance of continuous, well-planned forest management. Many local owners continue to manage their forests in the same fashion as their ancestors. An industry representative in eastern Virginia commented that forest owners would like to "allow their forests a chance to grow on their own", much as their parents and grandparents did.

Other management problems on small forests stem from the owner's misjudgement of market requirements and the compatibility of certain

silvicultural practices with other ownership objectives. As for market requirements, many owners are unaware of the potential profitability of managing on short rotations for fiber. There is a misconception among owners who wish to practice forestry that production of sawtimber is always more profitable than production of fiber. Furthermore, in areas lacking ample markets for sawtimber, such as the western counties of West Virginia, even sawtimber-sized trees are purchased based on the amount of fiber they contain. As a result, owners who delay timber sales until their forests reach sawtimber size reduce the frequency of timber harvest income, thus making investments in timber production less attractive.

It was also brought out in many interviews that forest landowners consider timber production to be incompatible with their other ownership objectives. Suggestions for remedying this problem included a more active effort on the part of state and federal forestry professionals to communicate the many options open to local owners and to clearly define the alternative means of harmonizing landowner goals with timber production. Although conflicting ownership objectives have often been discussed in connection with the small woodland problem,

industry has not found a suitable method for confronting the problem. Industry does, however, recognize that it is a major cause of poor management conditions on nonindustrial private forests.

In summary, the firms contacted revealed a growing concern for the poor management conditions on local nonindustrial private forests. Virtually all respondents indicated that small private forests are a key source of raw materials and that present management conditions will

not provide adequate timber production in the future. The interviews disclosed varying reasons for these poor management conditions, the most common of which concerns the attitudes of landowners toward the profitability of timber production and the perceived incompatibility of forestry with their other ownership objectives. Contained in the following section are the measures now being taken to improve management on small forests as discussed in the interviews with industry personnel.

3. Methods Now Used to Improve Timber Management on NIPFs

During each interview with industry personnel, questions were asked regarding the availability of management assistance for private forest landowners, were presented. Responses to this line of questioning differed from state to state, due mainly to the differences in services offered by state forestry organizations in the study area. In Virginia, for instance, the Virginia Division of Forestry provides interested forest owners with market information and certain consulting services which aid the owners in achieving their ownership goals. In many cases a free management plan is provided showing recommendations for management activities which will improve the productivity of the forested tract. Recommendations are of course geared to the owner's expressed goals and objectives on an individual basis. No volume information is provided in the initial free management plan. However, timber cruises and timber marking services are available at cost to owners who wish to sell marketable timber.

Also available in the Virginia region are many professional consulting foresters who aid local owners in assessing the management

needs of their forests. It appears from comments made during the interviews that owners of small forests in the Virginia region find little difficulty in acquiring forest management assistance. Consultants are available in ample numbers for owners who are able and willing to pay for assistance, and State foresters are available for less comprehensive, less costly assistance for owners of lower financial means. Such is not the case in northern Pennsylvania.

In Pennsylvania, the Pennsylvania Bureau of Forestry provides interested owners of nonindustrial private forests with a list of local consulting foresters who can provide technical services and advice. Apparently there is a shortage of forestry consultants in the Pennsylvania region, making it difficult or costly for forest owners to acquire the services they need. The Pennsylvania Bureau of Forestry also provides free services and management advice. The Bureau, however, has reduced its activities which furnish services at cost since shifting away from the State-Federal Cooperative Forest Management program. Currently, forest owners rely heavily on the few forestry consultants available and on forest products firms for on-the-ground services.

In West Virginia, Maryland, and western Virginia, landowners may engage in landowner assistance programs with industry on a relatively low-cost basis. The lack of competition for fiber in this area has kept prices low enough to allow forest industries to offer free advice, a free management plan, and matching seedling programs in return for goodwill and the expectation of continuing low prices. Consultants are also available to appraise standing timber and advise

owners about profitable management activities. As in the other two subregions, assistance from State foresters is available to interested landowners.

4. Workability of the Increment Contract

a. Response to the Basic Agreement

Prior to each interview with industry personnel, the interview participant was provided with an information packet containing a brief explanation of the study and background material on the basic provisions of the increment contract as it is used in Alabama, Florida, and Georgia. Information was mailed from 10 to 15 days before each meeting, allowing the participant ample time to study and consider the workability of the agreement. A sample information packet is presented in Appendix B.

Initial comments regarding the basic agreement were positive, in that most participants considered the increment contract to be workable under certain conditions. According to one individual, the increment contract appeared to be particularly attractive to woodland owners who need to increase their annual income without making large initial investments in forestry. He gave as an example low to middle income farmers in need of new farming equipment, already burdened with bills or the expense of sending their children to college. The contract would provide prepayments for future harvests of timber, thus permitting the forest to be managed to its full potential and avoiding the owner's need to engage in premature clearcutting or antiproductive high grading. The extra annual income could afford the farmer the opportunity to purchase new equipment, perhaps becoming more productive and better able

to make forestry investments on his own in future years. Forest landowners with occupations other than farming might also be willing to engage in increment-based cutting contracts, provided their need for additional annual income is great enough.

The number of local forests owned by persons or nonindustrial business entities, ~~in this situation~~ in need of additional income, was also addressed in each interview. There was general agreement that significant acreages of nonindustrial private forestland, within company work circles, is owned by parties whose need for additional annual income could induce formal contracting with industry. Asked to estimate the average size of such forest tracts, the responses ranged from 50 to 100 acres. Further, it was suggested that such forest tracts account for a majority of surrounding small woodlands. This was qualified, of course, by the degree of landowner need for extra income and the overriding attitudes toward forestry in general and long-term formal management agreements in particular. Because attitudes toward forestry practices are widely varied among small-forest owners, persons interviewed were unable to predict the reaction of local owners toward formal agreements for forest management with a large company. Industry representatives were optimistic, however, that the guaranteed annual payment characteristic could attract enough landowners to make the increment contract a viable tool for improving production on nonindustrial private forests.

During interviews held in Virginia and again in Pennsylvania, it was explained that forest landowners in high income tax brackets would be sensitive to the application of tax laws on income derived through an increment-based cutting agreement. Tailored to meet Internal

Revenue Service rules on capital gains treatment of timber income, the basic increment contract provides incentive for high-income landowners to engage in formal contracting with industry. According to one industrial forester, absentee landowners with large incomes avoid the lease or rental agreements now offered by the company because additions to spendable income are minimal due to the high rates at which rental income is taxed. He went on to say that the structure of the increment contract allows the owner to retain a clear economic interest in the standing timber. This aspect of the agreement is attractive to the owner because he or she can file the income as a capital gain and easily defend the treatment if audited. Also, company records which link partial payments to stumpage are readily accessible, making it easy to coordinate the timber income with other sources of income already included on the individual's tax return. In summary, industry personnel felt that the annual payments would attract low to middle income groups in need of additional spendable income and that the defendable tax position would attract high income groups who are sensitive to the application of IRS rules on capital gains.

In addition to positive remarks concerning the attractiveness of the annual payment clause, industry personnel found other aspects of the increment contract that could attract landowners to formal management arrangements. Through inheritance or other circumstances, forested property is often divided among several owners who are unable to agree on the management of their woodlands. As a result, the necessary silvicultural treatments are delayed until a decision can be reached as to who will pay for consulting services and how the profits will be

shared. One respondent explained that formal forest management agreements with industry allow the owners to negotiate the terms of the agreement for an extended period into the future. Clauses that provide for the appointment of a banking agent and attorney-in-fact limit disputes on how income is to be shared over the life of the contract, thus reducing conflicts among owners. Clauses that permit assignment of a party's rights make it easier for an owner to sell his or her partial interest in the forest land. More importantly, the formal contract keeps forested property intact because it simplifies the owner's responsibilities once the contract has been negotiated. Though not unique to the increment contract, this aspect of formal long-term agreements could attract multiple ownerships as well as singular ownerships seeking to keep landholdings intact to pass on to a number of heirs.

For the most part, industry foresters were questioned on the economic feasibility of the basic increment contract as it is used in the South. Their responses revealed that in the basic form the increment contract could prove to be helpful in attracting certain groups of landowners who would otherwise refuse to enter into a lease, the alternative form of annual payment forestry contract. The bulk of the individual interviews, however, involved questions aimed at revealing the strengths and weaknesses of the increment contract in local economies. The following sections present the results of these discussions.

b. Required Changes in the Basic Agreement

i. Changes Affecting Industry

Industry representatives made numerous suggestions concerning

important changes in the basic agreement that would make the increment contract better suited for use in the Central Appalachians. More than one industrial forester suggested that the percentage of the mean annual increment used to determine the annual payment should be reduced. The increment agreements used in the South provide for payments based on 65 to 75 percent of the estimated mean annual increment of the tract. One industry representative, charged with managing Northern Hardwoods on 100 year rotations, explained that a greater margin of safety would be required to make the agreement a viable instrument of land management. He suggested the payment be based on 50 to 60 percent of the estimated mean annual increment for the following reasons:

1. The longer rotation and slower growth of hardwoods result in a longer payback period than that experienced in the South.
2. Mountainous terrain in the Appalachians may result in higher road maintenance and building costs.
3. Unexpected damage from fire, diseases, or insect attack are a greater risk on longer rotations.
4. Tracts composed of low value species, not critical for future timber supplies, would understandably hold a weaker bargaining position than tracts occupied by high value species.

The respondent went on to say that contracts negotiated for relatively large acreages of high quality timber near maturity would probably use a safety margin similar to that used in the South for determining payment.

Other changes suggested by industry include making the escape clause more flexible for both parties. The basic agreement contains escape clauses which are contingent on mill shutdown or unforeseeable

occurrences such as war, civil commotion, Acts of God, and labor troubles, etc. Two interviewees, both working in West Virginia, determined that a more flexible escape clause would allow either party to withdraw from the agreement after notifying the other party in writing. When asked what was an acceptable period before withdrawal, the respondent disclosed that with mutual consent of the parties, one year would suffice. Of course, each contracting party would be compensated for services rendered or for timber removed. Without mutual consent, the period would have to be increased to about a 5 to 7 year period. One respondent indicated that the more flexible escape clause would reduce the landowner's mistrust of the company, thus permitting more responsible and equitable negotiations prior to the beginning of the contract.

Another problem area from the viewpoint of industry concerns the establishment of beginning unit prices. Illustrated in Appendix C is a cord credit account containing actual transactions made over a 12 year period. The beginning price for cords of pine pulpwood was established at the start of the contract and adjusted periodically using the U.S. Department of Labor Producer Price Index for Industrial Commodities. Unit prices for other harvested products, such as pine sawtimber, hardwood sawtimber, or poles were not, however, established by the initial written agreement. Instead, prices for products other than pine pulpwood were negotiated with the landowner prior to each series of cuttings. Industry foresters in the Central Appalachians suggested that each potential harvest product should have associated with it a beginning price and a mechanism for adjusting it to economic

activity. Comments indicated that the costs and delays resulting from repeated negotiations would prevent the firm from using the increment contract in its present form. The solution to this problem would entail identifying potential products and their associated beginning prices. Also, the contracting parties should agree on and understand how units of one product are converted to units of another product. Although these steps would complicate early negotiations with forest landowners, it would reduce the number of disputes in later contract years.

An important point brought out in virtually every interview was the significance of the contract period, both as it affects the negotiations and as it affects the feasibility of making annual prepayments for timber. For instance, forests situated near growing centers of population exhibit rapidly rising values as woodlots become prime targets for housing development projects. Owners of such forestland would understandably be hesitant to become involved in a lengthy 60 or 90 year agreement. Depending on the circumstances in individual cases, Appalachian industry personnel would trim the contract period to 30 or 40 years. In fact, a wood processor in North Carolina who already uses a prepaid purchase contract to manage small woodlands limits all agreements to a 15 year period.

The firm's representative explained that local resource conditions favor the use of a shorter contract period. His reasons were as follows:

1. Most forest tracts in the area are producing southern pines on 35 year rotations and are somewhere near the middle of the rotation when contracting begins, allowing the 15 year contract to expire at the end of the rotation.

2. Payments under this agreement are considered to be an annuity which accumulates timber payments based on a 10 percent annual interest rate. The risk associated with a 15 year period is all the firm wishes to assume.

3. Shorter contract periods are more easily negotiated with local owners.

4. Fifteen year contract periods allow the firm to renegotiate more often, thus keeping disputes over product unit prices to a minimum.

5. The contract is relatively new and the firm wishes to avoid being committed over a long term in the event the arrangement proves to be economically infeasible.

The final two points were reiterated in several interviews. Even with key improvements in its basic structure, the increment contract would be a relatively new timber management mechanism. It should be carefully monitored before being instituted on a large scale or over a long time period.

Finally, most forest products firms would like to include a clause which affords them the right of first refusal on acreages the owner decides to sell. Although this provision would not be mandatory, it would make the contracting arrangement more attractive to company officials. It was explained that the potential opportunities provided by such a clause could induce company policy-makers to negotiate several contracts on an experimental basis.

Other suggestions made by industrial forest managers related to how the contract could be made more attractive to the landowners. These changes are discussed in the next section.

ii. Changes Affecting the Landowner

One industry forester warned that local owners would not be quick to understand the conversion of cords to thousand board feet (MBF). Many forest landowners, even those in regions stressing fiber production, believe that the production of sawtimber is more profitable than the production of pulpwood. The company wishing to negotiate a contract based on a cord credit account or other unit of fiber measure must convince the participating landowner that value conversions of the MBF to tons of fiber are possible and, more importantly, equitable. Once landowner goals and proper forestry practices are coordinated prior to the contract, the accounting system can be adapted to individual circumstances. If it is agreed that fiber production is to be stressed throughout the agreement period, the volume credit account should use a fiber measurement unit as a base. Similarly, sawtimber production should result in using a grade measurement unit as the basis for increment accounting. In summary, the landowner should be fully aware of the rates of conversion being used on a particular tract, and the volume accounting unit should be geared to the individual case.

It was also brought out in the industry interviews that owners willing to engage in increment-based management contracts would tend to seek free advice regarding the arrangement's legality and fairness. They would most likely contact extension foresters, state foresters, and local wardens as a means of obtaining a second opinion on the matter. Two interview respondents indicated that the structure of the accounting system should be arranged to satisfy neutral parties whose job it is to provide free advice to landowners. It must be clearly shown that the

company is removing only material that is paid for and that it is paying for only material that is used or sold in the company's normal operations. In this way, the owner seeking advice is convinced from the start of the agreement that both parties benefit fairly from the arrangement. This confidence in the landowner-industry relationship will make it easier to introduce additional agreements in local economies and ease the settlement of disputes that might arise during the contract period.

The next section presents the results of three interviews with professional consulting foresters in the states of West Virginia and Pennsylvania.

C. Results of Interviews with Consulting Foresters

The history of the increment contract and the basics of the agreement were presented to three professional consulting foresters in the study area. Personal interviews with these individuals were used to elicit comments and recommendations regarding the possible use of increment-based cutting contracts in the Central Appalachians. Using the consulting forester as a surrogate for interviews with numerous owners of small woodlands, this phase of the study sought to learn more about the attitudes of local forest owners toward timber production and toward industrial management of their woodlands. Further, this series of interviews was used to investigate the landowner's experience with formal forestry contracts in general and the owner's possible reaction to the increment contract in particular. Because responses to the interview questions were often similar among the three consultants interviewed, the results are presented according to the topics discussed in each meeting.

The first section deals with the landowners' experience with formal contracting and the landowners' attitude toward forestry in general. The second section presents the consultants' view of how the landowner will react to increment-based cutting contracts with industry. In the third section, the discussion focuses on the problem areas of the increment contract and the consultants' suggestions for improving the agreement. Finally, the fourth section presents the consultants' comments on the nature of the small woodland problem and their suggestions for combating the problem.

1. Attitudes of Landowners Toward Formal Contracting

The forestry consultants who participated in the study were most informative with regard to the attitudes of local nonindustrial private forest owners toward forestry and the production of timber on their woodlands. The consultants indicated that most landowners are unable to make investments in forestry due to low levels of income. Other owners are unwilling to make investments in forest management because they underestimate the dollar value of their timber or because they perceive forestry to be a low-return alternative for investment. Ownership objectives, which often conflict with logging operations and timber production were also cited as deterrents to the effective practice of forestry on small ownerships. For the most part, however, the consultants indicated that owners of small woodlands would be willing to engage in timber production if, on the one hand, the owners were more aware of the profit potential in forestry, and on the other hand, they were not required to make an initial outlay of cash. Comments of this nature led to questions concerning landowner attitudes toward formal contracting for woodland management with the wood products industry.

A consulting forester in southern West Virginia disclosed that forestland owners have had little experience with long-term forest management agreements in that part of the study area. Although logging contracts and lump-sum purchase agreements are not uncommon to the subregion, few contracts providing the owner with industrial management are used in the area at this time. The respondent commented that a sufficient number of owners would consider the formal contract

as a management alternative, provided that the owner would not be required to make heavy initial investments. Further, he felt that owners would be particularly receptive to an agreement which provided immediate income.

Another participant, who provides forestry services in parts of Pennsylvania, West Virginia, and Maryland, also indicated that forest owners would react positively to the annual income provided through a lease or cutting contract. Asked to comment on the owner's need to retain full control of his woodlands as a possible deterrent to formal contracting, the consultant stressed that so long as the owner's rights to hunt, fish, and graze cattle on the land were protected, the owner would probably be receptive to contracting. He also stressed that open, frequent, and complete communication with the landowner and his agents would result in expanded use of formal contracting in the Appalachians. Further, he explained that mistrust of the company is slowly receding among Appalachian forest owners, and that more frequent contact with owners by company foresters would hasten the turnaround.

The interviews focused mainly on the practicality and workability of the increment contract if used in the Appalachian Region. Persons interviewed were asked to comment on the attractiveness of the payment method and the type of reaction landowners might have to the basic agreement. A discussion of their comments is presented in the next section.

2. Reaction to the Basic Increment Contract

There was general agreement among the consultants that local private woodland owners would find the guaranteed annual payment feature

of the increment contract to be attractive enough to induce formal contracting with industry. The respondents revealed that most nonindustrial private forest owners are unaware of the dollar values of both their forest land and the timber occupying the land. The owners usually estimate the value of standing timber to be much lower than current markets indicate. Compounding the problem, mill operators have been known to present purchase offers as low as one-fourth the actual market value for clearcutting operations. One respondent related a rare incident where a local bank, seeking to liquidate a foreclosed mortgage, had been offered $1,500 for standing timber on the property by a small sawmill operator. Upon inspection of the timber, the consultant found the actual market value to be about $5,000. Comments from other interview participants indicated that similar instances are not uncommon in the Central Appalachians. Because woodland owners in the region underestimate the dollar value of their forest holdings, regular payments which are reflective of current market prices could attract many owners to contract for forest management with industry. Respondents commented that annual prepayments, even limited to a percentage of growth increment, would seem fair and acceptable to a significant number of owners. The respondents also indicated that annual timber income would be particularly attractive to certain groups of landowners.

Owners who are middle-aged or older would be particularly receptive to the increment contract arrangement. First, the owner is required to invest nothing from his or her monthly income. Such cash investments are accounted for in the volume credit account and do not

detract from the minimum annual payment. Second, the minimum annual payment provides the owner with immediate, continuous income for a specified period. The older landowners need not wait until the timber is fully mature or merchantable to realize additional spendable income. Third, the increment-based arrangement allows the timber on the property to be managed beyond the life of the older landowner. The consultants indicated that many owners are concerned about the condition in which the land and timber are left to the owner's descendents. With a guaranteed annual timber income and provisions for improving management of the woodlands, the increment contract could satisfy such ownership objectives and attract older forestland owners to formal contracting.

Generally, the consulting foresters felt that local nonindustrial private forest owners would react positively to increment-based agreements. However, the interview participants also pointed out certain problem areas in the volume credit accounting system. The problem areas and the consultants' suggestions for improving them are discussed in the following section.

3. Suggestions for Improving the Increment Contract

The interview participants made several suggestions for improving the increment contract. Of particular concern was the structure of the volume credit account and the manner in which prices are adjusted for products other than the accounting base. Great price fluctuations for certain timber products would not be accurately accounted for under the present economic indexing system. For instance, the drastic drop in the price of red oak veneer logs over the past year would not have been accurately adjusted using the Producer Price Index. The firm would have been

required to pay nearly twice the local market price for veneer logs harvested. As a consequence, the firm may choose to harvest the timber as sawtimber rather than veneer. The landowner in this situation would suffer a loss of income. One consultant suggested that the unit prices of such products should be tied to a periodic market report. Product prices would be dictated by the latest published market price at the time of harvesting. Thus, the entries in the volume credit account would more accurately coordinate the payments made and the timber volume removed.

Another consulting forester suggested that an impartial third party to the contract, who would develop cutting schedules and monitor pricing regimes, would make the contract more attractive to individual landowners and insure the improvement of management conditions on the forest tract. He admitted, however, that this might make the agreement less attractive to industry. Still, the final arrangements for utilizing the impartial third party could be negotiated prior to the contract, and the limits of the third party's responsibilities could be established on an individual basis. Such an arrangement would also eliminate overcutting particular stands when the firm is faced with high stumpage prices on the open market. The company could still recover backlogs of volume credits, but not beyond the amount dictated by good forestry practices. As a result, the increment contract could better function as a tool for improving management conditions on small private woodlands.

Further suggestions for improving the contract's attractiveness

to both industry and the landowner involved the length of the contract period. Forestry consultants interviewed agreed that the contract period should be shortened to 15 to 20 years for effective use of the agreement. This would lessen the carrying charges of the company and would permit them to make prepayments for timber on a greater number of ownerships. In addition, the landowner would be more receptive to an agreement which would terminate within the lifetime of the owner. The shorter contract period would allow the older owner to realize all the benefits of the agreement. It was suggested that the contract period be negotiated on an individual basis, with the length being contingent upon proposed cutting schedules and the estimated date of maturity. Contracts for relatively young stands of timber could be renegotiated periodically throughout the rotation to meet the needs and objectives of both parties to the contract.

The next section deals with the consultants' views on the small woodland problem in general and their suggestions for combating the problem.

4. Suggested Approaches to the Small Woodland Problem

Interview participants were asked to comment on the management conditions on nonindustrial private ownerships and to suggest how those conditions might be improved. One respondent suggested that management of small woodlands could be improved substantially by removing vines and cull trees from the forest acreages. In addition, he suggested that establishing and maintaining accurate boundary lines on the small forest would improve management conditions indirectly. The psychological effect

of delineating an individual's forested property would initiate further steps toward better forest management. This would also lessen the occurrance of harvesting trespasses and give the landowner a better sense of the dollar value of his or her timber.

Because the initial forest management activities described above would require the landowner to make immediate investments, the respondent felt that such activities would not be undertaken on a large scale in the future. He was confident, however, that arrangements like the increment contract, which provide immediate and regular income, could be very helpful in encouraging landowners to begin practicing better forestry. Leases, increment contracts, and even Federal Land Bank loan arrangements could be used to provide the owner with prepayments for timber. He felt that the most effective means of improving the management of small woodlands is to eliminate the owner's requirement to make the initial investment in the improvement procedure. In doing so, the attitudes of landowners in general could be reconditioned and their opinions of forestry as an income source could result in many more productive ownerships.

It was mentioned during the interviews with industry that state forestry organizations should provide more indepth information to local forest owners. This thought was reiterated during the interviews with consulting foresters. The consultants suggested that state and county foresters should provide woodland owners with a list of their forest management alternatives, the potential costs and potential profits involved, and suggestions for the various means of achieving their selected objectives of management. Such information would help to

recondition owner attitudes toward forestry, and to allow the landowner to take advantage of new developments in cost-sharing, financing, and formal contracting. Although state and county forestry organizations already provide such information, the consultants felt that more emphasis on this aspect of their service to woodland owners would result in greater management improvements in the future.

V. CONCLUSIONS AND RECOMMENDATIONS

Use of the increment contract by pulp and paper firms in the South has brought nearly 500,000 acres of nonindustrial private forests into higher levels of timber production through the application of industrial forestland management techniques. However, the circumstances under which the contracts were first entered into have changed, and important changes in the structure of the basic agreement must be made before additional forest acreages can be managed via increment-based arrangements. Moreover, expanding the use of increment contracts into the Central Appalachian Region will also require changes in the basic agreement. These changes, although similar in nature to those required in the South, are greater in scope and should be researched in detail before use of the increment contract is expanded into the Appalachians.

Part A of this discussion focuses on the major conclusions drawn from fifteen interviews conducted with key forestry professionals during the study. For the most part, the conclusions reveal the shortcomings of the increment contract, and the ways in which the basic agreement might be improved. Part B lists the recommendations for useful changes in the increment contract for use in the Appalachians and suggestions for further research into specific aspects of increment-based agreements.

A. Conclusions

1. The conditions under which the increment contract was first used in the South have changed. In 1947 a large forest products firm

was faced with unreliable pulpwood markets prior to expansion of its kraft paper mill operations. The proposed expansion project resulted in limited available capital for the purchase of additional timberland to supplement the firm's source of raw materials. Still, the firm needed to secure control of additional timberlands before the mill expansion could proceed without serious risk of future timber shortages.

In the early 1960s a Canada-based firm was planning to build a linerboard mill in Alabama when similar circumstances occurred. Limited capital availability and unreliable pulpwood sources forced the firm to develop a method for controlling timber and timber production without purchasing the land in fee simple. In both cases, the firms devised increment-based cutting contracts to attract sufficient numbers of private forest owners to consent to long-term industrial management and control of their woodlands.

Today, these firms are actively seeking to purchase additional timberlands and have discontinued negotiating additional increment contracts. They still consider the increment contract to be a viable form of land management control, but increased availability of capital and a more promising outlook for pulpwood supplies from the open market have allowed the firms to utilize other management control measures which are better suited to the firm's objectives. The conditions which once necessitated the use of increment contracts have changed in favor of fee simple ownership as a means of timber management control. Capital is now available for purchasing timberlands, and the firms have gradually built relatively safe timberland bases. As a result, the firms need not offer the increment contract as a competitive edge over

firms that offer the more flexible lump-sum purchase and lease arrangement to local forest owners. Because the companies that first used the increment contract now have a safety reserve of raw materials on company-owned forests, the lease has become the favored alternative to fee ownership. It is less restrictive with regard to management practices, and the payments are often lower than those experienced under an increment contract. Most importantly, the firm is not required to keep records of timber removed. The timber standing on the land at the beginning of the lease is paid for in a lump sum. Through the lease or rental payments, the firm is entitled to remove whatever volume is produced during the remainder of the contract period. In this way, the lease allows the company to do better than break even through contracting with small woodland owners. Conversely, the increment contract requires the firm to pay for all timber volumes removed from the land.

2. Under certain conditions, the increment contract will continue to be used to provide industrial management on nonindustrial private woodlands in the South. During the interviews with forest products firms that presently use the increment contract, it was disclosed that the increment contract will be used on particularly desirable forest tracts. In the event that the owners are unwilling to sell or are uninterested in leasing arrangements, the increment contract will be offered as an alternative. Large tracts, preferably 500 acres or more, and tracts which help to consolidate company-owned timberlands are considered to be particularly desirable for increment-based agreements.

Other characteristics of the forest tract are also considered to be well-suited for increment-based contracts. Acreages with large volumes of timber inventory or that are well-stocked with desirable species are potential increment contract lands. A good system of roads would also help to qualify a given forest tract to be considered for such agreements. In the final analysis of a potential contract acreage, the firm would consider the tradeoffs between carrying charges on accumulated prepayments and the loss of logging rights to an especially attractive forest tract. The decision of whether or not to offer the increment contract arrangement to a given owner would ultimately depend on the firm's perception of its future timber needs.

3. Key changes in the basic increment contract would make the agreement more attractive to industry and would reduce the number of disputes during the contract period. Concerning use of increment contracts in the South, it was suggested by several industry personnel that base prices for all potential products from the forest tract should be established prior to the agreement. Further, adjustments in the product prices should be tied to published market prices rather than economic indexes. Establishing prices for all potential products would reduce the expense of negotiations prior to each harvest cutting. Owners would better understand the purpose of commercial thinnings and other intermediate cuttings dictated by sound forest management. Similarly, published market reports used to make adjustments in product prices would reduce the number of disputes by keeping the owner attuned to local prices and the dollar value of his or her forest tract. This change in the basic agreement would also promote goodwill among

neighboring landowners toward other contract arrangements with industry.

Another beneficial change in the basic agreement involves the length of the contract period. Increment contracts in the South are presently negotiated on 60 or 90 year periods. Shortening the agreement to 30 years, or even 15 years in some cases, would simplify early negotiations with landowners. Under shorter contract duration, unit prices can be established with less risk of vast fluctuations, thus making the agreement more attractive to industry. Shorter contract periods would also be more attractive to woodland owners whose holdings may be potential housing development sites or other high-value projects near population centers. Flexibility in the length of the contract period is perhaps the favored policy in such instances. Contract periods negotiated on an individual basis would make the agreement more attractive to the industry and the landowner alike. Factors important to both parties could be brought out prior to final negotiations, thus enhancing the fairness and workability of the industry-landowner relationship.

4. A significant number of nonindustrial private forest owners in the Central Appalachian Region would be receptive to the guaranteed annual payment aspect of increment contracts with industry. The interviews revealed that the owners of small woodlands usually neglect their forest holdings because they cannot afford to make the investments required to practice good forestry. Also, those owners who have sufficient income to make investments in forestry often fail to do so because they are discouraged by the low profit potential of timber production. Interview participants in all subregions of the study area

indicated that annual prepayments for timber would overcome these obstacles and induce a significant number of local owners to engage in formal contracting with industry.

Landowner attitudes toward formal contracting with forest products companies was also discussed during the interviews. Forest owners in eastern Virginia and North Carolina are, for the most part, familiar with formal contract arrangements for timberland management. Their exposure to long-term leases and share-crop agreements would facilitate the introduction of increment-based contracts in the subregion. Conversely, landowners in the northern Pennsylvania subregion have had little experience with long-term management agreements with industry. Still, good markets for quality sawtimber in the area would allow the forest products industry to offer attractive cash payments to many small woodland owners. Interview participants disclosed that the combination of relatively high annual payments and guaranteed markets for timber would induce a significant number of owners to commit lands over a long term in the Pennsylvania subregion. In the West Virginia subregion of the study area, two consulting foresters indicated that local forest owners would be receptive to increment contract arrangements. The annual payment clause would attract many owners because timber values in the area are often underestimated, and the regular cash payments would seem fair and reasonable to the average forest owner. Most importantly, however, the owner would react positively to securing a guaranteed market for his or her timber.

Although forest landowners throughout the study area would be attracted to increment contracts with industry, the small average size

of nonindustrial private forest tracts would be unattractive to industry. In some areas the average size of nonindustarial private forests is only 27 acres. In other areas the average size is as high as 125 acres. Industry personnel indicated that combining small woodlands with similar characteristics under many individual agreements would overcome this problem. Negotiating many individual contracts would be costly and time consuming for the industry, but the general attractiveness of the annual payment clause would minimize problems in securing feasible bundles of private forest property. The minimum acreage requirements of industry are discussed in the following section.

5. Industry personnel indicated a preference for relatively large forest tracts with a high volume of timber inventory in or near merchantable size classes for potential contract lands. In the South the minimum acceptable tract size is approximately 500 acres. Forest products industries in the Central Appalachian Region also prefer to contract for private forest tracts of larger-than-average size. The interviews with industry personnel revealed that tract size is only one factor used to assess the feasibility of contracting for timber management control on a particular forest holding. More importantly, the age, condition, quality, and merchantability of the timber occupying the land are considered in combination with other factors such as tract size and accessibility when the firm assesses the attractiveness of a contract proposal. Generally, however, forest industries in the Central Appalachians prefer larger-than-average tracts, approximately 500 acres or more, that are occupied by a high volume of timber inventory at or near the end of the rotation. Because the average tract size of nonindustrial private

forests in the Appalachians is substantially less than 500 acres, many private ownerships would thus be considered undesirable by industry unless homogeneous acreages could be combined via multiple contracts with individual landowners.

6. Key changes in the basic increment contract would make the agreement more appealing to forest products firms in the Central Appalachian Region. Industry representatives indicated that the percentage of the estimated mean annual increment used to determine the minimum annual payment should be reduced to approximately 50 to 60 percent. This change would lower the annual payment, provide a greater margin of safety against damage to standing timber, and would reduce the risks associated with predicting hardwood timber growth.

In addition, the forest products firms would prefer to establish unit prices for all potential products to be removed from the tract and to provide for alternative adjustments in the unit prices in the event that a specified economic index should fail to accurately reflect the true market value of the stumpage. It was suggested that published stumpage price and market reports be used to make the necessary adjustments in product prices.

Finally, forest industry personnel indicated a preference for contract periods substantially shorter than those used in increment contracts in the South. A contract period of 30 to 40 years would be more appealing to Appalachian forest industries than the lengthy 60 and 90 year contracts used in the South. Because increment contracts are new to the region, the shorter contract period would allow Appalachian forest products firms to reduce the uncertainties associated with trial

contracts and to monitor the total costs of prepayments for timber over a shorter period. Further, the risks of fluctuations in stumpage prices could be estimated more closely with a shorter planning horizon, thus making budgeting decisions for contract acreages less complicated. Some respondents also suggested that the costs associated with contract negotiations would be reduced because landowners would be more receptive to agreements of shorter duration. Additional advantages of shorter contract periods are discussed in the next section.

7. Although owners of nonindustrial private forests in the Central Appalachians would react positively to increment-based agreements with forest industries, key changes in the structure of the contract would increase landowner participation. Including a third party to the contract, who would represent the interests of the landowner concerning inspection of logging operations and protection of the residual growing stock, would eliminate distrust of the company by overly cautious landowners. Selection of the third party would become part of the pre-contract negotiations.

Shortening of the contract period would attract landowners who wish to have the agreement end within their lifetimes, thus attracting the older forest owners. The exact length of the contract period could best be negotiated on an individual basis.

Most importantly, restructuring the volume credit accounting system to reflect accurate market values for all products removed would lessen negotiation problems and would reduce the number of disputes during the contract period. Landowners would find the increment contract easier

to understand and would thus be in a better position to evaluate the benefits to be derived from the industry-landowner relationship. It was suggested by several persons interviewed that the written agreement should specify the beginning prices of each potential product. Further, adjustments in product unit prices should be based on published market information. In this way, the landowner and the industry could agree on the prices paid for stumpage. Based on the disputes most often experienced in the South, it is evident that improvements in the price adjusting mechanism would encourage more landowners to engage in the increment contract.

8. The wood products firms located in the northern Pennsylvania subregion and in the eastern Virginia and North Carolina subregion expressed interest in experimenting with increment contracts, while firms in the West Virginia subregion have little or no need for such agreements in the near future. Competition for stumpage appears to increase the usefulness of increment-based agreements in local forest economies. In northern Pennsylvania, where many firms compete for preferred species and grades of timber, diminishing inventories of high quality sawtimber are beginning to draw attention to improving the timber production on nonindustrial private woodlands. The larger firms are seeking ways to improve the management conditions on local small forests in order to insure the availability of raw materials in the future. One firm has already begun to investigate the feasibility of long-term agreements, and a representative of the firm commented that the basic increment contract will be included in the investigations. He explained that the larger firms in the region would probably begin to

engage in formal contracting mainly because the firm's investments in local small forests would be protected by the right-of-first-refusal clause in the written agreements. The legal commitment made by the landowner would assure that the benefits of increased production would accrue to the company, and not its competitors.

Similarly, large wood products companies in the eastern Virginia and North Carolina subregion are beginning to increase their use of formal agreements with small woodland owners. Competition for fiber has led one firm to offer local landowners a long-term management arrangement very similar to the increment contract used in the South. Other firms contacted during the study were unfamiliar with the increment-based payment system, but they indicated that this form of contract would be evaluated and possibly included as an alternative to their present long-term agreements, perhaps to gain control of particularly attractive ownerships.

Lack of competition for raw materials in the West Virginia subregion will likely result in little use of the increment contract. It was disclosed in two interviews with industry personnel in the subregion that woodland owners would find alternative markets for their timber as far away as 75 miles. Because the one or two large firms that draw supplies from West Virginia need not engage in severe competition for timber, informal arrangements to improve the management of small private woodlands will continue to be favored by industry. For this reason, formal agreements with private woodland owners, including the increment contract, will not be used extensively in West Virginia in the near future.

B. Recommendations

Based on the comments and reactions of key forestry professionals interviewed during the study, several changes in the basic increment contract are recommended. These changes should enhance the attractiveness of the agreement for both the landowners and the forest industries in the Central Appalachians. Further, the changes should facilitate the administration of the increment contract and eliminate many of the problems experienced with increment contracts in the South. The suggested changes are listed in section 1 below.

Recommendations for further research into specific aspects of the increment contract are presented in section 2. Further research into the operation of the volume credit account and the carrying charges on prepayments made by the participating wood products company is strongly recommended. Fluctuating interest rates, the relatively slow growth of hardwood timber, and the effect of commercial thinnings and rotation length should receive specific attention to determine their impact on the feasibility of increment-based agreements in the Central Appalachians.

1. Suggested Changes in the Basic Increment Contract

a.) The percentage of the mean annual increment used to determine the minimum annual payment should be reduced from 70 percent to about 50 or 60 percent, depending on the growth characteristics of the land.

b.) Unit prices for all potential timber products on a given ownership should be established prior to the contract and adjusted using an economic index or a published market report, whichever reflects the local market prices more accurately.

c.) The length of the contract period should be negotiated on an individual basis considering the merchantability of the timber, the size of the tract, and any other factors which affect the economic feasibility of the agreement. In any case, an effort should be made to shorten the contract period to between 20 and 40 years.

d.) The two major parties to the contract should consider including a third party who would establish the cutting schedules impartially and monitor the adjustments in product unit prices to assure that prices accurately reflect current market conditions.

2. Recommendations for Further Research

a.) The volume credit accounting system should be examined to determine the firm's carrying costs under a variety of contract circumstances. Factors such as rotation length, percent of mean annual incement used to determine payment, and tract size should be included in a sensitivity analysis of total costs in order to reveal which factors have the greatest effect on the firm's total costs.

b.) With the cooperation of several forest landowners and forest products companies, experimental agreements could be established and monitored to answer the following questions:

i. What minimum nonindustrial forest tract attributes (e.g., acreage, timber types, stand ages, stocking, productivity, distance to firm's mills) would make a given tract most attractive to a wood industry firm, for management under an increment contract?

ii. What major contract benefits (e.g., minimum periodic payments, length of contract, property rights waived to firm vs. those retained would induce landowners to enter into an increment contract?

iii.) Given answers to (i.) and (ii.), above, what acreages of nonindustrial private forest land could realistically be expected to be put under increment contracts in a given time period, and what volumes of roundwood production could be expected to flow from these lands (over and above production under continuation of current timber marketing prices)?

LITERATURE CITED

Bradley, John M., Jr. 1966. Landowner headaches saved by leases. Pulp & Paper. April 4, 1966. p. 69.

_____. 1967. A forest manager looks at leases. Forest Farmer. 26(1): 6-7,16-17.

Briggs, Charles W. 1977. Capital gain and loss treatment for timber. Forest Farmer, Manual Edition. 36(5): 51-60.

Brock, Samuel M. 1968. Woodland owner attitudes toward practicing forestry and participating in forestry associations. Research Series 5. Office of Research and Development, Appalachian Center, West Virginia University, Morgantown. 19 p.

Christensen, Wallace W. 1957. A methodology for investigating forest owner's management objectives. Unpublished Doctoral Dissertation, Syracuse University. pp. 1-6.

Christensen, Wallace W. and A. Edwin Grafton. 1966. Characteristics, objectives, and motivations of woodland owners in West Virginia. Bulletin 538. West Virginia University Agricultural Experiment Station, Morgantown. 28 p.

Clawson, Marion. 1978. Will there be enough timber? Journal of Forestry. 76: 274-275.

Cook, David W. 1978. What rates of return on NIPF investments? Journal of Forestry. 76: 411-413.

Darwin, W.N. 1971. Long-term land agreements. Forest Farmer, Manual Edition. 29(5): 72-75.

Duerr, William A. 1949. The economic problems of forestry in the Appalachian Region. Harvard University Press, Cambridge. 317 p.

_____. 1960. Fundementals of Forestry Economics. McGraw-Hill, New York. pp. 220-226.

Grafton, A. Edwin. 1963. Forest landownership in West Virginia: its characteristics, patterns, and trends. Unpublished Masters Thesis. West Virginia University, Morgantown. 89 p.

Gray, John L. 1978. The nonindustrial private forest ownership "problem". Journal of Forestry. 76: 467-469.

Greene, John L. 1976. Public agency programs to improve the management of small woodlands through the use of private consulting foresters. Unpublished Masters Thesis. West Virginia University, Morgantown. 222 p.

_____. 1979. The increment contract. Southern Journal of Applied Forestry. 3(3): 82-85.

Guttenberg, Sam. 1972. To lease or not to lease your timberlands. Forest Farmer, Manual Edition. 33(5): 41-42.

Hair, Dwight. 1978. Does the U.S. face a timber shortfall? Journal of Forestry. 76: 276-277.

Hutchinson, O. Keith and Orris D. McCauley. 1961. The small woodland owner in Ohio. U.S. Forest Service Technical Paper 183. Central States Forest Experiment Station, Columbus. 12 p.

Kaufman, Herbert. 1960. The forest ranger: a study in administrative behavior. The Johns Hopkins Press, Baltimore. For Resources for the Future. 241 p.

Kingsley, Neal P. 1979. How important is timber production to small owners? Forest Farmer. 38(8): 8-9.

Knight, Herbert A. and J.B. Hilmon. 1978. The hardwood timber supply situation in the eastern United States. Hardwood Research Council's Sixth Annual Hardwood Symposium at Cashiers, North Carolina. May 5, 1978. pp. 36-48.

Larson, David N. and David A. Ganser. 1972. Pennsylvania's private woodland owners -- a study of the characteristics, attitudes, and actions of an important group of decision-makers. U.S. Forest Service Research Paper NE-219. Northeastern Forest Experiment Station, Upper Darby. 16 p.

LeMaster, Dennis C. 1978. Timber supply, nonindustrial private forest land, and the conventional view. Journal of Forestry. 76: 365-367.

Manthy, Robert S. 1978. Will timber be scarce? Journal of Forestry. 76: 278-280.

Mills, Thomas J. and Daria Cain. 1979. Financial efficiency of the 1974 Forestry Incentives Program. Journal of Forestry. 77: 661-666.

Pleasonton, Alfred. 1975. Tree farm families in the South. U.S. Forest Service Research Paper SO- 113. Southern Forest Experiment Station, New Orleans. 9 p.

Row, Clark. 1978. Economies of tract size in timber growing. Journal of Forestry. 76: 576-582.

Sedjo, R. A. and D.M. Ostermeier. 1978. Policy Alternatives for Nonindustrial Private Forests. Society of American Foresters. Washington, D.C. 64 p.

Siegel, W.C. 1973. Long-term contracts for forest land and timber in the South. U.S. Forest Service Research Paper SO-87. Southern Forest Experiment Station, New Orleans. 14 p.

_____. 1974. Long-term timber contracts in the South. Forest Farmer. 33(1): 8-9, 17.

Siegel, W.C. and Sam Guttenberg. 1968. Timber leases and long-term cutting contracts in the South. Forest Industries. 95(4): 62-64.

Society of American Foresters. 1979. Improving Outputs From Nonindustrial Private Forests. Council of the Society of American Foresters, October 1, 1979. Washington, D.C. 11 p.

Solin, Lawrence. 1940. A study of farm woodland cooperatives in the United States. Technical Publication No. 48. New York State College of Forestry, Syracuse. 115 p.

Stoddard, C.H. 1961. The Small Private Forest Forest in the United States. Resources for the Future. Washington, D.C. 171 p.

_____. 1978. Proposed management and marketing foundation for improving production on small forests. Journal of Forestry. 76: 158-159.

U.S. Department of Agriculture, Forest Service. 1974. The Outlook for Timber in the United States. Forest Resource Report 20. U.S. Government Printing Office, Washington, D.C. 367 p.

_____. 1977. The Nation's Renewable Resources - An Assessment. Forest Resource Report 21. U.S. Government Printing Office, Washington, D.C. 243 p.

_____. 1978. The Federal Role in the Conservation and Management of Nonindustrial Private Forest Lands. Interagency Committee Report - Soil Conservation Service, Forest Service, Cooperative Extension Service. Washington, D.C. 63 p.

_____. 1979. An Assessment of the Forest and Range Land Situation in the United States. (Review Draft) U.S. Government Printing Office, Washington, D.C. 556 p.

Vaux, H.J. 1973. Timber resource prospects. In Timber! Iowa State University Press. Ames, Iowa. pp. 203-210.

Worley, David P. 1960. The small forest owner in Eastern Kentucky -- his attitudes and environment. U.S. Forest Service Technical Paper 175. Central States Experiment Station, Columbus. 5 p.

Worrell, Albert C. and Lloyd C. Irland. 1975. Alternative means of motivating investment in private forestry. Journal of Forestry. 73: 206-209.

Yoho, James G. 1961. What the United States can learn, pp. 74-87. In Comparisons in resource management. Henry Jarret (ed.) The Johns Hopkins Press, Baltimore. For Resources for the Future.

_____. 1973. Policies, programs, and forest owners. In Timber! Iowa State University Press. Ames, Iowa. pp. 203-210.

APPENDIXES

Appendix A

Questionnaires Used to Conduct the Personal Interviews

1. List of the Major Questions Asked During the Preparatory Interviews
2. List of the Major Questions Asked During Interviews with Industrial Forestland and Wood Procurement Managers in the Central Appalachians
3. List of the Major Questions Asked During Interviews with Professional Forestry Consultants in the Central Appalachians

Appendix A

1. List of the Major Questions Asked During the Preparatory Interviews

1. How many long-term agreements does your firm use to control timber management on local nonindustrial private forests?

2. Please indicate the approximate number of agreements and the total acreage involved that fall into the following categories:

   a. Lease or rental of bare land for planting and growing timber.

   b. Lease or rental of land with a lump-sum purchase of standing timber.

   c. Lease or rental of land only, but with certain specified cutting rights to timber during the term of the contract and with payment for timber on a volume basis as cut.

   d. Cutting rights to timber throughout the contract period with payments made on a volume basis as cut.

   e. Same as in d. above with specified management responsibilities.

   f. Please describe any agreements that do not fall into the above categories.

3. Which of these agreements does your firm plan to continue using?

4. Does your firm require a minimum acreage for a long-term forestry agreement?

   a. If yes, what is the minimum?

   b. What is the range of tract sizes under management contracts?

5. Does your firm require a minimum number of years for its long-term agreements?

   a. What is the range of contract periods?

   b. What factors are considered when setting the contract period?

   c. Does your firm make any provision to renew the agreement within a given time period of existing agreements?

6. What criteria are used to evaluate the land parcel before a contract is considered?

7. What is the policy regarding long-term agreements for land occupied by nonmerchantable timber at the beginning of the agreement?

8. Please indicate the proportion of total acreage of your long-term agreements in each of the following general forest types?

   Pine___% Mixed pine-hardwood___% Upland hardwood___%

   Bottomland hardwood___% Open or nonstocked___%

9. In what respects does your management of land under long-term forestry agreements differ from that of land in fee simple ownership?

10. Do the agreements used by your firm provide for a first refusal option to purchase the land if the owner decides to sell?

    a. How many acres in the last 10 years were acquired this way?

    b. Please discuss any other ways in which your company has purchased land held previously by long-term forestry agreement.

11. Is your firm actively seeking more long-term agreements?

    a. What proportion of your timber requirements do you hope to obtain from long-term forestry agreements?

    b. What category of agreement is preferred?

12. Is your firm actively seeking to purchase timberland in fee simple?

13. Does your firm have any informal assistance programs or tree farm arrangements that it offers to local landowners?

    a. What services are rendered?

    b. Is your company seeking more management arrangements of this nature?

14. Which type of arrangement would your firm prefer if it had a clear choice?

    ___long-term contracts ___fee simple ownership

    ___informal arrangements ___combination of others

15. Can the industry-landowner relationship for timber management be improved through an agreement not yet discussed?

This section deals specifically with the firm's use of the increment contract.

16. How many acres does your firm presently control through increment contracts? How many separate agreements are involved?

17. When did your firm first enter into an increment contract?

18. What were the circumstances under which the agreement was developed?

19. What are the criteria for entering into these agreements in terms of:

    a. minimum size restrictions to the tracts involved,

    b. average length of the agreement period,

    c. proximity to mills or wood yards,

    d. and intermingling of the forest tracts with company land?

20. Please describe the procedure used to establish the annual payment made to the landowner.

    a. How do you determine what the land is capable of producing under management?

    b. Describe the negotiation process with respect to the timing and frequency of payments.

    c. How do your agreements provide for adjustments in payments as economic conditions change?

    d. How do pre-payments and subsequent harvests equilibrate with respect to the time value of money?

21. How are forest management costs allocated between contracting parties in your agreement?

22. How are ad valorem taxes treated in your agreements? Please discuss in terms of who pays the taxes and the provisions for adjustment, if any, when taxes change.

23. How is risk shared and adjusted during the term of the contract?

24. Does your firm plan to continue implementing increment-based agreements?

25. What do you feel are the advantages of the increment contract to the firm?

26. What do you feel are the selling points most attractive to individual landowners?

27. Do you have any hardwood tracts under increment contract?

    a. How do the payments differ from pine or mixed pine-hardwood tracts?

    b. What characteristics of your local hardwood tracts are most inconsistent with the cord credit method of payment?

    c. What are the disadvantages of holding hardwood acreages under this type of agreement?

28. What type of agreement is your firm presently in favor of?

29. Do you feel it necessary to attract more landowners or are sufficient numbers interested in contracting to meet your requirements?

30. What are the disadvantages that you see for use of the increment contract in a predominantly hardwood region?

31. In your opinion, what is the most workable long-term forestry agreement at this time?

32. Please discuss an actual increment contract, point by point if possible, and comment on the purpose behind key provisions.

Appendix A

2. List of the Major Questions Asked During Interviews with Industrial Forestland and Wood Procurement Managers in the Central Appalachians

1. How many long-term agreements does your firm use to control timber management on nonindustrial private forests?

2. How many acres of forestland does your firm own and manage for timber production?

3. What are the various forms of agreements used by your firm to contract for cutting rights and/or timber management control?

4. Which of these agreements does your firm plan to continue using?

5. What are the acreages involved in contract lands?

   a. Largest _____ acres

   b. Smallest _____ acres

   c. Required minimum _____ acres

6. What are the guidelines used to determine the acceptability of forested properties for management contracting?

   a. Volume present

   b. Species composition

   c. Size classes

   d. Proximity to yard or mill

   e. Condition of management

7. When determining acceptability, what benefits and costs are weighed and what cutoff points are used to evaluate a particular tract?

8. Does your firm require a minimum number of years for its long-term agreements?

   a. What is the range of contract periods?

   b. What factors are considered when setting the contract period?

   c. Does your firm make any provision to renew the agreement within a given time period of existing agreements?

9. What is the policy regarding long-term agreements for land occupied by nonmerchantable timber at the beginning of the contract period?

10. Do the agreements used by your firm provide for a first refusal option to purchase the land if the owner decides to sell?

    a. How many acres in the last 10 years were acquired this way?

    b. Please discuss any other ways in which your company has purchased land held previously by long-term forestry agreement.

11. Is your firm actively seeking more long-term agreements?

    a. What proportion of your timber requirements do you hope to obtain from long-term forestry agreements?

    b. What type of agreement is preferred?

12. Does your firm have any informal assistance programs or tree farm arrangements that it offers to local landowners?

    a. What services are provided?

    b. Is your company seeking more management arrangements of this nature?

13. Which type of arrangement would your firm prefer if it had a clear choice?

    ___long-term contracts ___fee simple ownership

    ___informal arrangements ___combination of others

14. In your opinion, can the industry-landowner relationship for timber management be improved through an agreement not yet discussed?

15. What led the firm to enter into long-term agreements with forest owners or why has the firm refrained from using such management arrangements?

16. To what extent have past agreements proven successful as far as increasing the available timber supplies is concerned?

17. What does your firm consider to be the most desirable form of long-term management agreement?

18. Is your firm actively seeking to purchase timberland in fee simple?

19. Is fee ownership the preferred form of management-harvesting control? Please explain the circumstances under which the various forms of contracting are used as an alternative to purchasing forestland.

20. What seems to be the most attractive agreement to landowners?

21. Other conditions equal, what provisions of past agreements have been most attractive to landowners?

22. Can formal contracting be expanded within your work circle? Are their substantial acreages of desirable timberland that could be controlled by some form of agreement in your area of longest feasible haul?

23. Have the agreements you presently offer landowners been successful in bringing owners under contract or have some owners responded unfavorably due to certain provisions of the agreement?

    a. What provisions were found to be undesirable?

    b. Was a particular group of landowners identified as finding the agreement unattractive? eg. absentee, farmers, etc?

24. How are owners who might be interested in contracting identified? Who plays the active role in seeking to establish the formal contracting arrangements?

25. What do you feel are the advantages of the increment contract to the firm?

26. What do you feel are the selling points of the increment contract most attractive to individual landowners?

27. What are the disadvantages that you see for use of the increment contract in a predominantly hardwood region?

28. What changes in the basic agreement would make the increment contract more effective from the standpoint of the firm?

29. What key provisions in the basic agreement must be altered?

    a. How would you suggest the method for determining the annual payment be improved?

    b. What length of contract period do you consider most workable for increment-based agreements within your work circle?

30. What changes in the basic agreement would make the increment contract more attractive to local woodland owners?

31. What changes in the volume credit accounting system would make the increment contract more workable in a hardwood region?

    a. What unit of volume measure would work best in local forest product markets?

    b. How would you adjust payments for the various products removed during normal logging operations?

32. In your opinion, what is the best method for improving timber management conditions on local nonindustrial private forests?

33. Please discuss the degree of dependence your firm expects to have on small woodland timber supplies and the steps you plan to take to insure adequate future supplies.

Appendix A

3. List of the Major Questions Asked During Interviews with Professional Forestry Consultants in the Central Appalachians

1. How do landowners who are interested in managing their forests for timber production obtain technical information and assistance?

2. What role do local forest products industries play in providing technical assistance?

3. What aspects of "outside management" appear to be most attractive to local owners?

4. In your experience, what aspects of "outside management" appear to be most unattractive to local owners?

5. How do you advise landowners who express an interest in committing forestland through formal agreements with large forest products firms?

6. From the viewpoint of the landowner, what are the benefits to be derived from long-term contracting?

7. What other management arrangements could be used to derive these same benefits?

8. In your experience with landowners, what would you say are the disadvantages of long-term contracting for timberland management?

9. What, if any, of these could be remedied by altering or renegotiating contract provisions?

10. On ownerships where you have provided consulting services, what are the silvicultural systems presently being used and how do you think an increment-based cutting contract would coordinate with landowner goals and management practices?

11. This question segment will be used to discuss the provisions of the increment contract point-bypoint. A copy of an actual increment contract obtained through the preparatory interviews in the South will be used as a guide. As each contract provision is covered, the respondent will be asked to comment on the following points:

    a. How would local attitudes and market conditions affect the workability of this provision?

    b. How might the contract provision be improved?

c. What changes would be necessary due to silvicultural practices used in your locality?

12. Review the basic agreement and indicate a workable contract structure which would be acceptable to local landowners.

13. Indicate the overall resource and market picture and relate this to the practicality, workability, and feasibility of the contract from the standpoint of the landowner.

14. What local wood processing firms are large enough to offer pre-payments for timber?

15. Are their raw material requirements consistent with the silvicultural treatments used in this locality?

16. Are the ownership objectives of local forest owners consistent with the harvesting schedule necessitated by an increment-based agreement?

17. What other forms of long-term contracting could be used to improve management on nonindustrial private forests with which you have worked?

18. What, in your opinion, would be the most equitable and effective way of improving timber production on small private forests?

a. ...from the standpoint of ownership objectives?

b. ...from the standpoint of owner needs and attitudes?

c. ...from the standpoint of local resource and market conditions?

Appendix B

Information Packet Used to Familiarize Interview Participants with the Increment Contract

Preliminary Information

Backgound

This information is provided in preparation for your participation in a research project on formal timber management-harvesting agreements. The research is being conducted by the Division of Forestry, College of Agriculture and Forestry, West Virginia University.

Funds for the project were provided by the USDA, Forest Service in connection with a long-range effort to identify and evaluate the factors that limit resource development on nonindustrial private forests. Specific problems, such as those concerning formal contracting between landowners and industry, are explored in order to improve existing landowner-industry institutions and to investigate the feasibility of expanding successful instruments from one region to another.

The increment contract, used exclusively in the South, could provide sufficient incentive for private nonindustrial forest owners to contract with forest products firms for timberland management. Landowners with a high time preference for timber income are often receptive to the terms of this unique agreement. It provides income that is immediate, continuous, protected from inflation, and taxable as capital gains. Thus, the increment contract could attract forest owners who consider other forest management arrangements to be unsatisfactory.

The purpose of this research is to identify the advantages and disadvantages of using the increment contract in the Central Appalachian Region. A major objective of the study is to identify the circumstances under which the increment contract might alleviate long run timber supply problems in local economies. Part of this will be accomplished by discussing the details of the contract with professional forestry consultants such as yourself. Your knowledgeable comments and insight into the workability of the agreement will be used to make the necessary improvements in the basic economic provisions and administration of the contract. Further, your input will provide a basis for related research in the area of formal forest management agreements.

Discussion Questions

In preparation for our upcoming meeting, I have developed a series of open-ended discussion questions. These will relate to the attitudes of landowners toward outside management of their forests and to the potential effectiveness of any long-term forestry agreement in improving management on nonindustrial private forests in the Central Appalachians. Cost factors such as rotation length, terrain, species composition, and tract size will also receive attention. Because the agreement in its present form gives full management responsibility to the firm, these factors will directly affect the workability of the contract in a given locality.

Basics of the Increment Contract

Somewhat like a lease, the increment contract provides that the landowner receive a minimum annual payment for the length of the agreement period. Unlike a lease, however, payments are tied directly to a specified volume of timber inventory via a volume credit account which reflects accumulated payments and offsetting harvests. This accounting system enables the landowner to qualify for capital gains treatment of his timber income. The combination of an annual payment and the application of capital gains taxation is the unique characteristic of the increment contract.

The minimum annual payment is based on the average annual increment of wood fiber the land is capable of producing under management. Leaving a margin of safety, the company pays for only a portion, usually 65 to 75 percent, of the estimated mean annual increment. The payment is then recorded in the landowner's account expressed as units of volume. In practice, the yearly payments result in a backlog of unharvested volume which the company recovers through large removals later in the contract period.

Annual cash payments increase the volume credit balance by the number of volume units specified in the written agreement. Services provided at cost, such as planting, are also converted to volume units and credited to the account. When harvests are made, volume units are debited against the account, thus recovering the backlog. If large removals result in debit balances, cash payments in the subsequent period bring the account to zero.

A brief word about the unit used in the volume credit account should make the accounting system more clear. Increment contracts used in the South utilize the pine pulpwood cord as the standard accounting unit because normal operations require this material more than any other. Removals of other products, such as pine sawtimber or hardwood pulpwood, are converted to the standard unit by dividing their total dollar values by the price per cord of pine pulpwood. With only minor adjustments, therefore, the volume credit account could be based on any standard volume unit.

Enclosed is an example of a "cord" credit account for the first four years of an increment contract period. Brief explanations are used to clarify what has taken place in each accounting period.

Other provisions of the agreement stipulate the legal responsibilities of the contracting parties. These are common to most long-term forestry agreements and include clauses that set the contract period, establish beginning prices, allow for settling of disputes, and specify the rights of the landowner and contracting firm.

For the most part, my questions will focus on the clauses which deal with the payment method and the important management costs. As other topics enter the discussion, more detailed background on the structure of the agreement and the type of input called for in the study will be provided. All information you provide will be held in strict confidence.

EXAMPLE CORD CREDIT ACCOUNT

Period 1

CORD CREDIT:

Beginning balance	-0-	cords
Prepaid $7,068/6.00*	1,178.0	cords
Annual Credit (1968)	785.0	cords
Planting--- 43.33 acres @ $12.00 per acre = $519.96		
$519.96/6.00*	86.0	cords
Total Cord Credit	2,049.0	cords

CORD DEBIT:

Amount harvested	-0-	cords
Total Cord Debit	-0-	cords

BALANCE CORD CREDIT OR (DEBIT) ---------- 2,049.0 cords

* Note: The written agreement established $6.00 per cord as the beginning price.
It also established 785.0 cords as the annual cord credit.
The owner received $7,068.00 as incentive to enter into the agreement.
He also received $4,710.00 or 785.0 times $6.00 as his annual payment.
Planting costs were converted to cords and credited to the account.
The firm made no removals in the first period.

EXAMPLE CORD CREDIT ACCOUNT

Period 2

CORD CREDIT:

Beginning balance..... 2,049.0 cords

Annual Credit (1969)..... 785.0 cords

Total Cord Credit..... 2,824.0 cords

CORD DEBIT:

Pine saw: 85,232 Cu.Ft. @ $ .18 Cu.Ft. = $ 15,341.76

Pine pulp: 318.88 cords @ $ 6.00 cord = $ 1,913.28

Hwd saw: 18.71 MBF @ $ 32.50 MBF = $ 608.08

Hwd pulp: 108.31 cords @ $ 2.40 cord = $ 259.94

Total.....$ 18,123.06

$ 18,123.06 divided by 6.00* = Cord Debit.....(3,021.0) cords

BALANCE CORD CREDIT OR (DEBIT)----------(178.0) cords

(178.0) cords debit @ $6.00* = $ 1,068.00 due Owner.**

* Note: The cord credit balance from the previous period has been carried forward. The owner is paid $4,710.00 or 785.0 times $6.00 as his annual payment. The total dollar value of harvested products is converted to cords and debited against the accumulated cord credit. A debit balance results.

** The owner is paid an additional $1,068.00 within the stipulated time period and the account is brought to zero.

EXAMPLE CORD CREDIT ACCOUNT

Period 3

CORD CREDIT:

Beginning balance..... -0- cords

Annual Credit (1970)..... 785.0 cords

Total Cord Credit..... 785.0 cords

CORD DEBIT:

Amount harvested..... -0- cords

Total Cord Debit..... -0- cords

BALANCE CORD CREDIT OR (DEBIT)---------- 785.0 cords

Note: The zero balance from the last period and the annual cord credit of 785.0 cords result in a Total Cord Credit of 785.0 cords.

The Producer Price Index, as provided in the contract, is used to adjust the price per cord upward in this period to $6.74.

Thus, the cash payment to the landowner increases to $5,290.90 while the annual cord credit remains at 785.0 cords per year.

EXAMPLE CORD CREDIT ACCOUNT

Period 4

CORD CREDIT:

Beginning balance.....	785.0	cords
Annual Credit.....	785.0	cords
Total Cord Credit.....	1,570.0	cords

CORD DEBIT:

Amount harvested.....	-0-	cords
Total Cord Debit.....	-0-	cords

BALANCE CORD CREDIT OR (DEBIT)---------- 1,570.0 cords

Note: The balance is again carried forward.

The owner again receives a cash payment of $5,290.90 for the annual cord credit.

The account will accumulate credits so long as the firm does not engage in harvesting.

Appendix C

Actual Cord Credit Account for a 550 Acre Forest Tract from 1968 to 1980

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1968:

CORD CREDIT:

Credit balance from last year.....	0.0	cords
Annual (1968).....	785.0	"
Planting: 260 acres @ $ 12.00 /ac.	520.0	"
Miscellaneous.....	1,178.0	" prepaid

TOTAL CORD CREDIT... 2,483.0 cords

CORD DEBIT:

Pine Saw	_____	Cu Ft @ $	_____	/Cu Ft	= $_____
Pine Pulp	_____	cords @ $	_____	/cord	= $_____
Hwd Saw	_____	MBF @ $	_____	/MBF	= $_____
Hwd Saw	_____	MBF @ $	_____	/MBF	= $_____
Hwd Saw	_____	MBF @ $	_____	/MBF	= $_____
Hwd Pulp	_____	cords @ $	_____	/cord	= $_____
Misc.	_____	@ $	_____	/	= $_____

TOTAL.....$_____

$_____ divided by $_____ per cord = _____ cords

TOTAL CORD DEBIT.... 0.0 cords

BALANCE:

Cord Credit or (Debit) ..... 2,483.0 cords

DUE OWNER:

(_____) Cords Debit @ $_____ /cord* = $_____

*) Applicable Index Price

COMPANY NAME

signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1969:

CORD CREDIT:

Credit balance from last year..... 2,483.0 cords
Annual (1969)..... 785.0 "
Planting: _____ acres @ $_____/ac. _____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 3,268.0 cords

CORD DEBIT:

Pine Saw	85,232.00	Cu Ft @ $	.18	/Cu Ft	= $	15,341.76
Pine Pulp	318.88	cords @ $	6.33	/cord	= $	2,081.51
Hwd Saw	18.71	MBF @ $	32.50	/MBF	= $	608.08
Hwd Saw		MBF @ $		/MBF	= $	
Hwd Saw		MBF @ $		/MBF	= $	
Hwd Pulp	108.31	cords @ $	2.40	/cord	= $	259.94
Misc.	231	ties @ $	.35	/tie	= $	80.85

TOTAL.....$ 18,309.14

$ 18,309.14 divided by $ 6.33 per cord = (2,892.44) cords

TOTAL CORD DEBIT.... (2,892.44) cords

BALANCE:

Cord Credit or (Debit) ..... 375.56 cords

DUE OWNER:

(_____) Cords Debit @ $_____ /cord* = $_____

*) Applicable Index Price

COMPANY NAME
signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1970:

CORD CREDIT:

Credit balance from last year..... 375.56 cords
Annual (1970)..... 785.00 "
Planting: _____ acres @ $_____/ac. _____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 1,160.56 cords

CORD DEBIT:

Pine Saw	_____	Cu Ft	@ $_____	/Cu Ft	= $	_____
Pine Pulp	96.24	cords	@ $ 6.74	/cord	= $	648.65
Hwd Saw	12.45	MBF	@ $ 33.73	/MBF	= $	420.04
Hwd Saw	_____	MBF	@ $_____	/MBF	= $	_____
Hwd Saw	_____	MBF	@ $_____	/MBF	= $	_____
Hwd Pulp	2,146.07	cords	@ $ 2.40	/cord	= $	5,150.59
Misc.	_____		@ $_____	/	= $	_____

TOTAL.....$ 6,219.28

$ 6,219.28 divided by $ 6.74 per cord = (922.74) cords

TOTAL CORD DEBIT.... (922.74) cords

BALANCE:

Cord Credit or (Debit) ..... 237.82 cords

DUE OWNER:

(_____) Cords Debit @ $_____ /cord* = $_____

*) Applicable Index Price

COMPANY NAME
signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1971:

CORD CREDIT:

Credit balance from last year..... 237.82 cords
Annual (1971)..... 785.00 "
Planting: _____acres @ $_____/ac. _____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 1,022.82 cords

CORD DEBIT:

Pine Saw _____Cu Ft @ $_____ /Cu Ft = $_____
Pine Pulp _____cords @ $_____ /cord = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Pulp _____cords @ $_____ /cord = $_____
Misc. _____ @ $_____ / = $_____

TOTAL.....$_____

$_____ divided by $_____ per cord = _____cords

TOTAL CORD DEBIT.... 0.0 cords

BALANCE:

Cord Credit or (Debit) ..... 1,022.82 cords

DUE OWNER:

(_____) Cords Debit @ $ 6.74 /cord* = $_____

*) Applicable Index Price

COMPANY NAME
signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1972:

CORD CREDIT:

Credit balance from last year..... 1,022.82 cords
Annual (1972)..... 785.00 "
Planting: _____ acres @ $_____/ac. _____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 1,807.82 cords

CORD DEBIT:

Pine Saw _____ Cu Ft @ $_____ /Cu Ft = $_____
Pine Pulp _____ cords @ $_____ /cord = $_____
Hwd Saw _____ MBF @ $_____ /MBF = $_____
Hwd Saw _____ MBF @ $_____ /MBF = $_____
Hwd Saw _____ MBF @ $_____ /MBF = $_____
Hwd Pulp _____ cords @ $_____ /cord = $_____
Misc. _____ @ $_____ / = $_____

TOTAL.....$_____

$_____ divided by $_____ per cord = _____ cords

TOTAL CORD DEBIT.... 0.0 cords

BALANCE:

Cord Credit or (Debit) .....1,807.82 cords

DUE OWNER:

(_____) Cords Debit @ $ 7.21 /cord* = $_____

*) Applicable Index Price

COMPANY NAME
signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1973:

CORD CREDIT:

Credit balance from last year..... 1,807.82 cords
Annual (1973)..... 785.00 "
Planting: _____acres @ $_____/ac. _____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 2,592.82 cords

CORD DEBIT:

Pine Saw _____Cu Ft @ $_____ /Cu Ft = $_____
Pine Pulp _____cords @ $_____ /cord = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Pulp _____cords @ $_____ /cord = $_____
Misc. _____ @ $_____ / = $_____

TOTAL.....$_____

$_____ divided by $_____ per cord = _____cords

TOTAL CORD DEBIT.... 0.0 cords

BALANCE:

Cord Credit or (Debit) ..... 2,592.82 cords

DUE OWNER:

(_____) Cords Debit @ $ 7.21 /cord* = $_____

*) Applicable Index Price

COMPANY NAME
signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1974:

CORD CREDIT:

Credit balance from last year..... 2,592.82 cords
Annual (1974)..... 785.00 "
Planting: _____ acres @ $_____/ac. _____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 3,377.82 cords

CORD DEBIT:

Pine Saw _____ Cu Ft @ $_____ /Cu Ft = $_____
Pine Pulp _____ cords @ $_____ /cord = $_____
Hwd Saw _____ MBF @ $_____ /MBF = $_____
Hwd Saw _____ MBF @ $_____ /MBF = $_____
Hwd Saw _____ MBF @ $_____ /MBF = $_____
Hwd Pulp _____ cords @ $_____ /cord = $_____
Misc. _____ @ $_____ / = $_____

TOTAL.....$_____

$_____ divided by $_____ per cord = _____ cords

TOTAL CORD DEBIT.... 0.0 cords

BALANCE:

Cord Credit or (Debit) ..... 3,377,82 cords

DUE OWNER:

(_____) Cords Debit @ $ 8.52 /cord* = $_____

*) Applicable Index Price

COMPANY NAME
signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1975:

CORD CREDIT:

Credit balance from last year..... 3,377.82 cords
Annual (1975)..... 785.00 "
Planting: _____acres @ $_____/ac._____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 4,162.82 cords

CORD DEBIT:

Pine Saw	296,424.00	Cu Ft @ $	.2311	/Cu Ft	= $	68,503.59
Pine Pulp	1,562.93	cords @ $	10.12	/cord	= $	15,816.85
Hwd Saw	10.800	MBF @ $	50.00	/MBF	= $	540.00
Hwd Saw	2.626	MBF @ $	60.00	/MBF	= $	157.56
Hwd Saw	10.249	MBF @ $	70.00	/MBF	= $	717.43
Hwd Pulp	596.04	cords @ $	4.05	/cord	= $	2,413.96
Misc.		@ $		/	= $	

TOTAL.....$ 88,149.39

$ 88,149.39 divided by $ 10.12 per cord = (8,710.41) cords

TOTAL CORD DEBIT.... (8,710.41) cords

BALANCE:

Cord Credit or (Debit) ..... (4,547.59) cords

DUE OWNER:

(4,547.59) Cords Debit @ $ 10.12 /cord* = $ 46,021.61

*) Applicable Index Price

COMPANY NAME
signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1976:

CORD CREDIT:

Credit balance from last year.....	0.0	cords
Annual (1976).....	785.00	"
Planting: _____ acres @ $_____/ac.	_____	"
Miscellaneous.....	_____	"

TOTAL CORD CREDIT... 785.00 cords

CORD DEBIT:

Pine Saw	_____	Cu Ft	@ $_____	/Cu Ft	= $	_____
Pine Pulp	737.34	cords	@ $ 11.06	/cord	= $	8,154.98
Hwd Saw	_____	MBF	@ $_____	/MBF	= $	_____
Hwd Saw	_____	MBF	@ $_____	/MBF	= $	_____
Hwd Saw	_____	MBF	@ $_____	/MBF	= $	_____
Hwd Pulp	689.14	cords	@ $ 4.42	/cord	= $	3,046.00
Misc.	_____		@ $_____	/	= $	_____

TOTAL.....$ 11,200.98

$ 11,200.98 divided by $ 11.06 per cord = (1,012.75) cords

TOTAL CORD DEBIT.... (1,012.75) cords

BALANCE:

Cord Credit or (Debit) ..... (227.75) cords

DUE OWNER:

(227.75) Cords Debit @ $ 11.06 /cord* = $ 2,518.92

*) Applicable Index Price

COMPANY NAME

signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1977:

CORD CREDIT:

Credit balance from last year..... 0.0 cords
Annual (1977)..... 785.00 "
Planting: _____acres @ $_____/ac._____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 785.00 cords

CORD DEBIT:

Pine Saw _____Cu Ft @ $_____ /Cu Ft = $_____
Pine Pulp _____cords @ $_____ /cord = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Pulp _____cords @ $_____ /cord = $_____
Misc. _____ @ $_____ / = $_____

TOTAL.....$_____

$_____ divided by $_____ per cord = _____cords

TOTAL CORD DEBIT.... 0.0 cords

BALANCE:

Cord Credit or (Debit) ..... 785.00 cords

DUE OWNER:

(_____) Cords Debit @ $ 11.06 /cord* = $_____

*) Applicable Index Price

COMPANY NAME
signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1978:

CORD CREDIT:

Credit balance from last year.....	785.00	cords
Annual (1978).....	785.00	"
Planting: _____ acres @ $_____/ac.	_____	"
Miscellaneous.....	_____	"

TOTAL CORD CREDIT... 1,570.00 cords

CORD DEBIT:

Pine Saw	_____	Cu Ft @ $	_____	/Cu Ft	= $_____
Pine Pulp	_____	cords @ $	_____	/cord	= $_____
Hwd Saw	_____	MBF @ $	_____	/MBF	= $_____
Hwd Saw	_____	MBF @ $	_____	/MBF	= $_____
Hwd Saw	_____	MBF @ $	_____	/MBF	= $_____
Hwd Pulp	_____	cords @ $	_____	/cord	= $_____
Misc.	_____	@ $	_____	/	= $_____

TOTAL.....$_____

$_____ divided by $_____ per cord = _____ cords

TOTAL CORD DEBIT.... 0.0 cords

BALANCE:

Cord Credit or (Debit) ..... 1,570.00 cords

DUE OWNER:

(_____) Cords Debit @ $ 12.28 /cord* = $_____

*) Applicable Index Price

COMPANY NAME

signed by representative

COMPANY LETTERHEAD

Report of your Cord Credit Account through December 31, 1979:

CORD CREDIT:

Credit balance from last year..... 1,570.00cords
Annual (1979)..... 785.00 "
Planting: _____acres @ $_____/ac._____ "
Miscellaneous..... _____ "

TOTAL CORD CREDIT... 2,355.00cords

CORD DEBIT:

Pine Saw _____Cu Ft @ $_____ /Cu Ft = $_____
Pine Pulp _____cords @ $_____ /cord = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Saw _____MBF @ $_____ /MBF = $_____
Hwd Pulp _____cords @ $_____ /cord = $_____
Misc. _____ @ $_____ / = $_____

TOTAL.....$_____

$_____ divided by $_____ per cord = _____cords

TOTAL CORD DEBIT.... 0.0 cords

BALANCE:

Cord Credit or (Debit) ..... 2,355.00 cords

DUE OWNER:

(_____) Cords Debit @ $ 13.24 /cord* = $_____

*) Applicable Index Price

COMPANY NAME
signed by representative

Appendix D

The Increment Contract Used in the South Prior to Final Negotiations

This TIMBER SALE AND PURCHASE CONTRACT between _____

_____

_____

(herein called "Owner") and _____

_____

_____

(herein called "Purchaser")

W I T N E S S E T H:

That, for and in consideration of Ten Dollars ($10.00) in hand paid to Owner by Purchaser and of the mutual covenants of Owner and Purchaser herein set forth, Owner and Purchaser hereby contract as follows:

1(a) Whenever the term "the land" or "the said land" or "the Owner's land" is used in this contract it shall mean all timberland owned by Owner and located in _____

_____;

1(b) Whenever the word "timber" is used in this contract it shall mean and include all seedlings, stockings, saplings, trees and stumps regardless of size or species, now standing and growing on the land or which shall hereafter be standing and growing on the land but shall not include limbs, branches, tops and other parts of trees or diseased or damaged trees which are not commercially usable and which are not in fact used or sold by Purchaser;

1(c) Whenever the word "cord" is used in this contract it shall mean 5,300 pounds in the case of pine pulpwood, or 5,400 pounds in the case of hardwood pulpwood;

1(d) Whenever the term "merchantable pulpwood" is used in this contract it shall mean logs of pine or hardwood species not less than four feet in length, measuring not less than four inches in diameter in bark at the small end and shall be free from rot, stain, charcoal in excess of 5% and foreign material in excess of 2%.

1(e) Whenever the word "year" is used in this contract it shall mean the twelve month period commencing on _____ or an anniversary of such date save that the Purchaser may notify the Owner that it prefers to conduct its business with the Owner on the basis of a fiscal year and thereafter the word "year" shall bear the appropriate meaning accorded to it by such notice.

2. Owner shall sell exclusively to Purchaser and Purchaser shall purchase from Owner for the purchase price hereinafter set forth all timber standing and growing and which shall hereafter be standing and growing during the term hereof upon the Owner's land except timber cut and removed pursuant to paragraph 5 hereof, and Purchaser shall have and is hereby granted the exclusive right to cut and remove all such timber upon and subject to the terms, covenants and conditions hereinafter set forth.

3(a) Purchaser shall pay Owner for timber purchased and to be purchased hereunder at the rate of $_____ for each cord of merchantable pine pulpwood timber or its equivalent which is cut and removed by Purchaser from the land; provided, however, that the purchase price shall be increased or decreased in the same percentage as the annual average of the Producer Price Index for all Commodities, published by the United States Department of Labor, Bureau of Labor Statistics, shall increase

or decrease over or under the average for the calendar year (which is based on 1967 = 100), but the purchase price shall not be adjusted more than once annually and only for increments of increase or decrease equalling or exceeding five percent (5%) of the average in respect to the first adjustment or from the average which made necessary the previous increase or decrease of the said purchase price in respect of any subsequent adjustment. The adjustment of price shall be made on the first day of June in the year succeeding the year the average of which is used to determine the adjustment and the adjusted price shall determine the price to be paid for timber and the quarterly minimum payments to be made for such succeeding year and each subsequent period of one year until further adjustment of the price becomes necessary pursuant to the terms hereof.

3(b) Should the Producer Price Index for All Commodities, published by the United States Department of Labor, Bureau of Labor Statistics, be abandoned or no longer published, or should the basis or base period of said Producer Price Index be so changed that it no long reflects changes in the average wholesale commodity prices for any particular calendar year as compared with such prices as of the calendar year _____, then any adjustment of the purchase price shall be made in accordance with such other wholesale price index for all commodities as will fairly and reasonably reflect such changes, but if the parties are unable to agree upon what other wholesale price index is to be used for this purpose then any adjustment to be made shall be determined by arbitration as herein provided.

3(c) Purchaser shall pay Owner for any timber sold and purchased hereunder which is used or sold by Purchaser as merchantable saw, pole or piling, cross-tie, or veneer block timber the stumpage price for such timber from time to time prevailing in the vicinity of the land. In determining the prevailing stumpage price of timber there shall be considered all items which affect its stumpage price, including, without limitation, its classification or specification as saw, pole or piling, cross-tie, or veneer block timber, the accessibility of the timber, the character of the terrain on which the timber is located, the road network serving the land, the volume of timber to the acre, the distance to shipping points, the transportation costs to destination, and any other items which may affect its stumpage price.

3(d) Initially, for thepurpose of this contract two and one-half ($2\frac{1}{2}$) cords of merchantable hardwood pulpwood timber shall be considered to be the equivalent of one (1) cord of merchantable pine pulpwood timber. If during the effective period of this contract the comparative values of hardwood pulpwood timber and pine pulpwood timber change in the vicinity of the land, an appropriate adjustment will be made under this paragraph 3(d).

3(e) The purchase price herein provided shall constitute the purchase price of timber sold and purchased or to be sold and purchased hereunder (and not the purchase price for cords as such), and the use of cords of pine pulpwood timber as a unit of measurement is merely for convenience in accounting and determining the purchase price to be paid by Purchaser for timber purchased or to be purchased.

4(a) Purchaser shall keep in a suitable permanent record book a "cord credit account" with respect only to the land. There shall be credited to the cord credit account on _____, and on each anniversary of such date during the term of this contract _____cords of merchantable pine pulpwood timber. There shall be debited to the cord credit account as promptly as possible the actual number of cords of merchantable pine pulpwood timber or its equivalent cut and removed from the land by Purchaser. For purposes of debiting the cord credit account for timber described in 3(c) above, such timber shall be converted into cords of pine pulpwood timber by dividing the stumpage price by the existing price of a cord of pine pulpwood as referred to previously in paragraph 3(a) of the contract. Purchaser shall be under no obligation to cut and remove any quantity of timber in any given year, but Purchaser shall pay to Owner in equal quarterly installments an amount equal to the purchase price of _____ cords of merchantable pine pulpwood timber whether or not timber is cut and removed during such year, the first installment to be paid on _____ _____ . Purchaser shall within thirty (30) days following the end of each year furnish Owner a statement showing the quantities of timber cut and removed from the land by him during the preceding year and the current status of the cord credit account. Owner shall be deemed to have accepted said statement as true and correct if Owner does not notify Purchaser in writing within ninety (90) days of receipt of such statement of any objection thereto.

4(b) If the cutting and removal of timber by Purchaser during the year result in a debit balance as of the end of the year, then within thirty (30) days following the end of such year Purchaser shall pay to Owner the purchase price for the number of cords shown as creating the debit balance and thereupon the said balance shall be cancelled and the cord credit account will show a zero balance.

4(c) If the cutting and removal of timber by Purchaser during any year result in a credit balance as of the end of the year, the said credit balance shall be carried forward to the next year as a credit against which timber may be cut and removed by Purchaser during subsequent years without additional payments but not so as to reduce the obligations of Purchaser to pay an amount equal to the purchase price of _____ cords as provided above.

4(d) Purchaser shall keep complete and accurate records in regard to its timber operations on the land and record the same in the cord credit account. Owner shall have the right at all reasonable times to examine such records.

5. Purchaser shall have and is hereby granted the right and privilege in its discretion of determining the time or times during the term hereof when it shall engage in cutting operations on the land, the logging methods used, including, without limitation, selective cutting, seed tree plan or clearcutting, the areas to be cut and the particular trees within such areas to be cut; provided, however, that Purchaser shall use due care to avoid unnecessary injury and damage to other timber and growing stock and shall cut only such timber as is available for cutting under good forestry practices. Purchaser shall be required

to reforest by planting or seeding only to the extent that such reforesting may be required by good forestry practices as a result of the cutting operations of Purchaser. Purchaser shall so utilize the timber cut in order to obtain the largest number of cords of pine pulpwood timber or its equivalent; provided, however, that Purchaser shall not be obliged to debit the cord credit account or to purchase and pay for any trees which are cut or destroyed for thinning purposes or pursuant to other good forestry practices as herein provided unless actually used commercially or sold by Purchaser.

6. Purchaser shall have and is hereby granted easements for free and full access to said land at all times for the purpose of conducting its operations hereunder. Purchaser shall have and is hereby granted the right to build such roads or other improvements as are required for management, protection, and harvest of timber from the lands. Purchaser shall have and is hereby granted the right to maintain and use such roads and bridges as are now on said land. Owner shall at all reasonable times be afforded full and free access to said land for the purpose of inspecting and checking the compliance by Purchaser with its obligations hereunder and for any other purposes not inconsistent with Purchaser's rights and operations hereunder. Owner shall not, however, carry on any activity on said land which would interfere unreasonably with Purchaser's rights and operations hereunder. Purchaser agrees not to interfere unduly with pasture and crop operations of Owner on land of Owner not subject to this contract.

7. Owner and Purchaser acknowledge that the improvement in quality

and quantity of the pine timber stand on the land during the term of this contract so as to produce the maximum amount of merchantable pine pulpwood timber is to their mutual advantage, and they shall cooperate fully with each other to this end and shall conduct all their operations on or activities with respect to the land in all respects in accordance with good forestry practices. Purchaser shall have the right to conduct reforestation operations and other silvicultural practices it deems desirable to improve the quality and quantity of said pine timber stand.

8. Owner shall pay all taxes, including without limitation ad valorem taxes and improvement assessment, levied or assessed against the land during the term hereof and levied or assessed against the timber on the land until such timber is cut as herein provided, and promptly furnish Purchaser evidence of such payment. In the event Owner should fail or refuse so to pay any such taxes when due, Purchaser shall have the right to pay such taxes and deduct the amount of the taxes from any payment subsequently accruing to Owner hereunder. Purchaser shall pay ad valorem taxes on the timber after the same has been cut by Purchaser and shall pay all severence taxes with respect to the timber cut by Purchaser.

9. All right, title and interest in and to the timber to be sold or purchased hereunder shall remain in Owner until the timber has been cut and thereafter, title shall be in Purchaser except that Owner shall retain a lien for stumpage until the same shall be paid for in full. In the event any timber is damaged so as to be unmerchantable or destroyed by any of the causes mentioned in paragraph 10 hereof,

the party holding title thereto shall bear the loss resulting from such damage or destruction. In the event the damage occurs while title to the timber is in Owner, Purchaser shall be relieved of its obligation to cut the trees so damaged except to the extent that it is economically and otherwise feasible to cut and use or sell trees so damaged. This provision shall no, however, be construed to relieve either party from liability for loss resulting from the negligence of such party, its or his agents or employees.

10. If either party is unable to perform any of its obligations or undertakings hereunder by reasons of (a) war, (b) civil commotion or acts of the public enemy, (c) acts of God, (d) labor strikes or other labor troubles which directly or indirectly affect Purchaser's ability to perform hereunder, (e) wind, hail or sleet storms, (f) restrictions or prohibitions of the state or federal government or any of their respective agencies or subdivisions, (g) the condemnation of title to or use of the land or any part thereof or the timber thereon, (h) the exploration or drilling for or mining or production of oil, gas or other minerals or operations incidental thereto under instruments heretofore or hereafter executed and recorded (i) fire, explosion, however caused (j) disease or blight, insect attack or similar infection or infestation of timber, then such party shall be relieved from its obligation or undertakings to the extent and for the time it is unable to perform them; and should Purchaser, because of any of said reasons be prevented or unable to cut and remove the timber from the land or any part thereof for pulpwood purposes, or should such cutting and removal of the timber

be or become hazardous in the reasonable opinion of Purchaser by reason of any defect in or adverse claim against Owner's title to the land or any part thereof or timber thereon, Purchaser shall have the right to reduce the annual credits to the cord credit account required by paragraph 4 hereof in the same proportion and for the same time that Purchaser is prevented from cutting, removing or using the timber from the land and the minimum annual payment provided in paragraph 4 shall be correspondingly reduced.

11. Anything contained herein to the contrary notwithstanding, if Purchaser or its successors or assigns shall cease, for reasons other than those mentioned in paragraph 10 hereof, for a continuous period of six months to operate a mill for the manufacture of pulpwood products in _____ County, State of _____, and shall for that reason cease its cutting operations hereunder, Purchaser shall not be obliged to credit the cord credit account as required by paragraph 4 hereof and the minimum annual payment required by said paragraph shall be reduced to the rate of $1.00 per acre of the land per annum; such reduction in the minimum annual payment shall remain in force and effect until such time as Purchaser or its successors or assigns, or a corporation owned by Purchaser or its successors or assigns, resumes and commences the operation of such mill. Owner shall have the right to sell timber on the land to persons other than Purchaser during the time any such reduction in the minimum annual payment remains in force and effect, but not exceeding the rate of _____cords per annum.

12. This contract shall be for a term commencing on the date hereof and terminating on _____. Upon the termination of this contract, all rights of Purchaser to cut and remove timber from the land and all other rights granted Purchaser shall terminate; Owner shall be entitled to retain all minimum payments, whether or not Purchaser has cut the timber for which such payments were made, as liquidated damages for Purchaser's failure to cut the timber; and Purchaser shall be relieved of any further obligation hereunder.

13. If a dispute should arise between the parties hereunder and such dispute is not settled by mutual agreement, then either party may in writing notify the other party of the dispute and in said notice name and appoint one arbitrator, and the other party shall within thirty (30) days by a responding notice name and appoint one arbitrator, and the two arbitrators so appointed shall select a third arbitrator giving notice to the parties of their selection, and the decision of said arbitrators, or a majority of them shall be final. Should either party fail or refuse to appoint an arbitrator within thirty (30) days after receipt of the notice from the other party, or should the two arbitrators so selected fail to select such third arbitrator within thirty (30) days after their appointment, then in either event the American Arbitration Association or its successor, if then in existence, shall appoint the second or third arbitrator or both. Arbitration hereunder, whether or not following appointment by said Association of one or two arbitrators, shall be conducted in accordance with the rules of said Association in effect at the time of the giving of said notice. If said Association or its successors should not be in existance at the

time of such dispute, the second or third arbitrator or both shall be appointed by the Senior United States District Judge for the district in which the largest part of the land lies and the arbitration shall proceed in accordance with such rules as said district judge shall specify. Each party shall bear the cost and expense of the arbitrator selected by it or for it, and the other costs, including reasonable compensation for the third arbitrator, shall be borne by the parties equally.

Once any such dispute is settled or determined by mutual agreement of the parties or by award of arbitration, such agreement or award shall be and remain in force and effect as a supplement or amendment to this contract until altered by further agreement of the parties or by subsequent award of arbitrators.

14. If there is a default by Purchaser under this contract Owner shall have no right to take any action by litigation or otherwise against Purchaser or to demand arbitration on account of any asserted default, unless Owner shall have first given Purchaser written notice by United States registered mail, postage prepaid, of the default and unless thereafter Purchaser shall fail or neglect to correct such default within one hundred twenty (120) days after the day of receipt by it of such registered mail notice; provided, however, if the default shall be of such a nature that it cannot be corrected within one hundred and twenty (120) days, then if the Purchaser commences action within that period to correct such default the period shall be extended for such time as may reasonably be sufficient to enable Purchaser to

correct the default; provided further, that if Purchaser shall deny the existance of the alleged default the question shall be submitted to arbitration and the calculation of the time herein provided shall commence from the date of the award of the arbitrators.

15. Owner has and by these presents does appoint _____ _____, a banking institution, and such successor corporation by whatever name known as many from time to time succeed to the business of said bank as its agent and attorney-in-fact with full authority (1) to collect and receive all sums accruing and payable to Owner hereunder and to pay such sums to Owner in accordance with instructions to said bank from Owner, (2) to receive and acknowledge any and all notices and other documents contemplated hereby to be given to or served upon Owner and to give or serve upon Purchaser any and all notices and other documents contemplated hereby to be given or served upon Purchaser, (3) to compromise, settle or adjust any claim or demand by or against Owner under this contract or relating to the subject matter hereof, (4) to waive strict compliance with the terms and conditions hereof and to agree to any modification or revision of such terms and conditions and to execute all documents necessary in connection therewith or require hereby, (5) to appoint arbitrators on behalf of Owner in connectionwith any arbitration hereunder and to take any other action, at law or otherwise, on behalf of Owner relating to matters arising under this contract, (6) generally to represent Owner hereunder, administering this contract on behalf of Owner, his heirs, executors, administators, successors and assigns, and protecting and securing their rights hereunder; provided, however, that said agent and

attorney-in-fact shall not have authority to act under the foregoing clauses (3), (4), (5), and (6) of this paragraph so long as (a) ____ _____ is (are) the Owners of the land, or (b) so long as their heirs, executors, administrators, successors, assigns or subsequent owners of the land have appointed an individual to represent all of them with complete authority to act for them under the foregoing clauses (3), (4), (5), and (6) of this paragraph 15. Owner shall pay all expenses and fees charged by said bank for the performance of such duties. Purchaser shall be entitled to rely upon this appointment until a successor to said bank has been duly appointed by Owner and notice of such appointment shall have been received by Purchaser. All payments required to be made and all notices required to be given by Purchaser to Owner shall be deemed properly made, or given if made or given to said bank. Purchaser shall not be required to acknowledge or act upon any notice given it by Owner unless and until the same shall be given it by said bank.

If at any time during the term hereof said bank should resigns, become disqualified or be discharged from acting hereunder, Owner shall promptly appoint and designate a successor to such bank as Owner's agent and attorney-in-fact and notify Purchaser in writing of such appointment; and if Owner shall fail to designate and appoint by sufficient legal instrument a successor to such bank, Purchaser shall be entitled to pay all moneys due hereunder to any national or state bank with offices in any county in which any of said land is situated to be held for the account of Owner, which payments shall be deemed to be the equivalent of payment directly to Owner, and Purchaser shall be

entitled to deliver all notices and other communications which may be required of it hereunder to such bank until such time as Purchaser shall be notified of a successor to said bank.

16. Owner warrants that it has a good and merchantable title in fee simple to the land and to the timber thereon, subject only to easements and rights of way of record, public roads, ad valorem taxes for the current tax year, and the lien of a mortgage to _____; that the same are free from all other liens and encumbrances; that Owner has a good right to sell and convey the timber on the land and to grant the rights hereby granted Purchaser; that the Owner has obtained or will obtain before any payments are made hereunder by Purchaser the written agreement, in form and substance satisfactory to Purchaser, of the said mortgage pursuant to which Owner is authorized by said mortgagee to enter into and perform the contract; and that Owner will warrant and defend the same unto Purchaser against the claims of all persons. If Owner, in Purchaser's opinion, should fail adequately to defend title to said timber or any of the rights granted pursuant hereto, Purchaser shall be authorized to make such defense either in its own name, or in Owner's name, or both including payment of said mortgage if Owner fails to pay said mortgagee; Owner shall indemnify Purchaser from any and all losses and reasonable expenses incurred by Purchaser as a result of claims herein warranted against.

17. Purchaser shall indemnify and save harmless Owner from and against all liability for injury or damage to third persons or their property resulting from the negligent acts or negligent omissions by

Purchaser or its agents or employees in the conduct of Purchaser's operations hereunder; provided, however, that Purchaser shall not be obliged to indemnify or save harmless Owner from or with respect to any liability attributable to the failure of or defect in or encumbrance upon Owner's title to the land or the timber thereon or with respect to liability resulting from the negligent acts or negligent omissions by Owner, its agents, or employees.

18. This contract and all the terms, conditions and covenants hereof shall run with the land and shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, executors, administrators, successors and assigns. Either party may, without consent, assign or transfer such party's rights, interest and title hereunder but no such assignment or transfer shall relieve such party from its obligations and liabilities hereunder and provided further, that no such assignment or transfer by Owner shall be binding upon Purchaser until it has received written notice of such transfer.

19. When requested by Purchaser, Owner or its agent and attorney-in-fact herein appointed shall, but at no expense to Owner, execute and deliver to Purchaser any and all further instruments, in form satisfactory for recording, necessary by law or reasonably deemed to be necessary by Purchaser to perfect the rights herein granted it and to give or constitute legal notice to third parties of Purchaser's rights hereunder, and upon the expiration or sooner termination of this contract, Purchaser shall execute and deliver to Owner any and all releases, quit-claims or other instruments reasonably requested by

Owner to evidence such expiration or termination.

20. The Owner shall have the right to graze cattle on the timberlands and nothing contained in the contract shall be deemed to prevent cattle from roaming or grazing on the lands.

21. Purchaser agrees to repair any and all fences, roads, bridges and other improvements that are damaged by Purchaser, its agents, servants or employees while engaged in cutting and removing timber from the lands described in the contract. The Purchaser agrees that where it is necessary to go across pasture lands or crop lands to establish roads it will use only the roads so established and will interfere as little as possible with the pasture lands and crop lands; and further, where it is necessary for Purchaser to enter through pasture lands in order to get to the timberlands, Purchaser agrees to keep closed all gaps or gates.

22. The Owner reserves the right at any time during the effective period of this contract to obtain a release of not more than ten percent (in area) of the land subject to this contract. In the event of any such release the credit to the cord credit account and the advance payment provided for in paragraph 4(a) of the contract shall be reduced proportionately.

23. Owner expressly reserves the right and has the right at any time in the future to enter into any contract calling for the exploration or mining of oil, gas or minerals and the third person, firm or corporation entering into said contract with said Owner shall have the right to explore for oil, gas or minerals and remove the same from said lands without interference on the part of the Purchaser; provided, in the event

any such mining or exploration operations should interfere with the timber operations of Purchaser or reduce the amount of timber available, then the Purchaser shall have the right to reduce proportionately the annual credits to the cord credit account required by paragraph 4(a) of the contract for the time that Purchaser is prevebted from cutting, removing or using timber from the land and the advance payment provided in paragraph 4(a) shall be correspondingly reduced.

24. At any time before ten (10) years from the effective date of this contract Owner has the option of notifying the Purchaser that Owner intends to plant pine seedlings on any or all open lands owned by Owner at date hereof or hereafter, and upon planting of such pine seedlings by Owner on said open lands, the Purchaser agrees that such lands shall become subject to all the terms and conditions of the contract and further agrees that the annual credit to the cord credit account for such planted lands shall be three-fourths (3/4) of one cord of merchantable pine pulpwood timber for each acre so planted and the minimum annual payments to be paid to the Owner pursuant to paragraph 4(a) of the contract shall be increased proportionately.

25. Owner has the right to add to the contract and make subject to the contract additional lands not now covered by the contract which are subsequently acquired by owner and which are comparable to the lands of the Owner now subject to the contract; provided, however, that no additional lands may be so added to this contract after twenty-five (25) years from the effective date of this contract. The lands to be added to this contract pursuant to this paragraph must be located

within a fifty (50) mile radius of _____, and must be comparable to the lands now subject to the contract in quality, timber volume, productivity, location, logging conditions, and accessibility.

26. Owner expressly reserves all hunting and fishing rights on the land and reserves the right to plant occaisional small food plots for game management.

27. This contract has been executed by Owner in the State of _____ _____ and shall be construed according to the laws of said state.

IN WITNESS WHEREOF, Owner and Purchaser have executed this Timber Sale and Purchase Contract on this the _____ day of _____ _____, 19___.

_____

Owner

COMPANY NAME

By _____

Purchaser

Appendix E

List of Abbreviations Used in the Thesis

ACP : Agricultural Conservation Program

FIP : Forestry Incentives Program

IRS : Internal Revenue Service

MAI : Mean Annual Increment

MBF : Thousand Board Feet

NIPF : Nonindustrial Private Forest

SAF : Society of American Foresters

USDA : United States Department of Agriculture

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